

AMENDMENT AND RESPONSE UNDER 37 CFR § 1.111

Serial Number: 09/684554

Filing Date: October 6, 2000

Title: ADENO-ASSOCIATED VIRUS VECTORS AND USES THEREOF

Page 2

Dkt: 875.024US1

In the Drawings

Exhibit A → Substitute drawings for Figures 1-16 and 18-27 are enclosed herewith.



TITLE: AAV-ASSOCIATED VIRUS VECTORS AND USE THEREOF
INVENTORS NAME: John F. Engelhardt et al.
SERIAL NO.: 09/684,554

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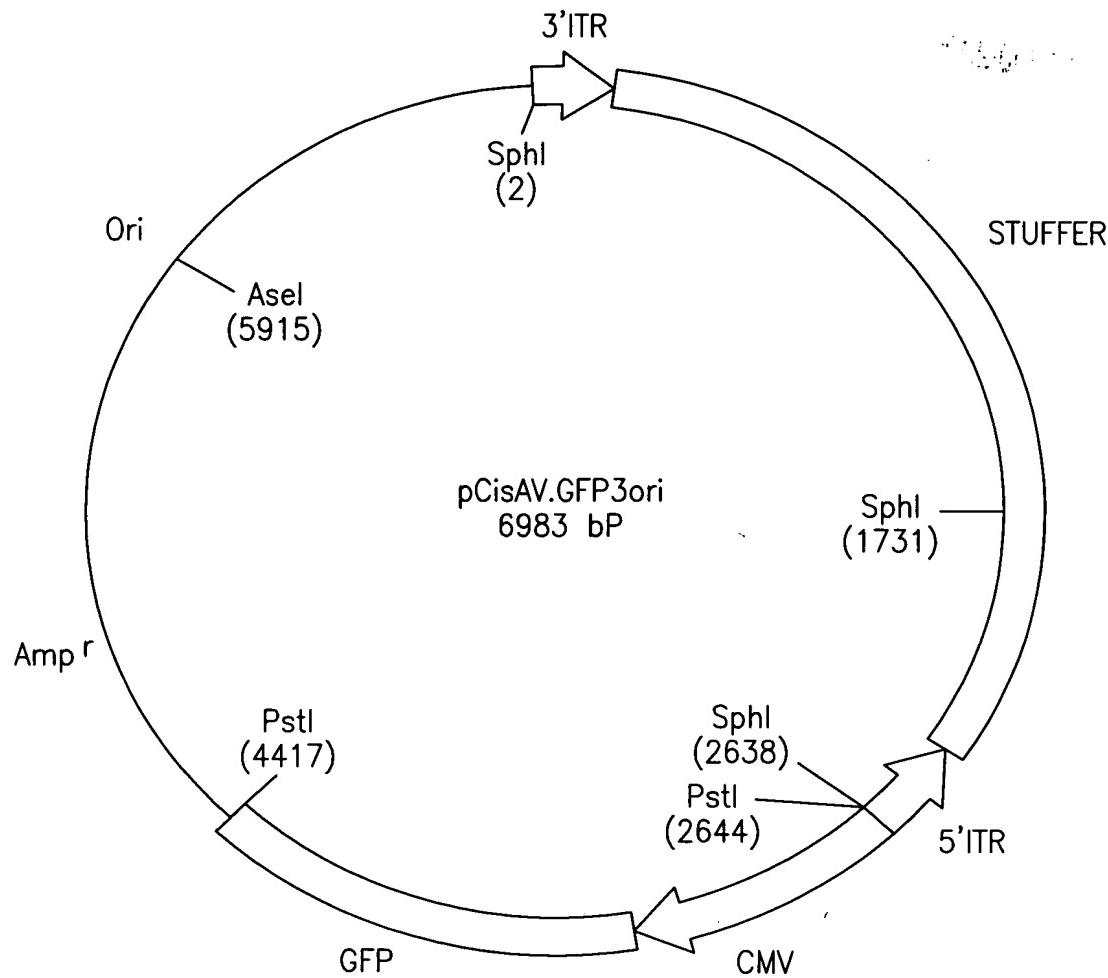


FIG. 1A

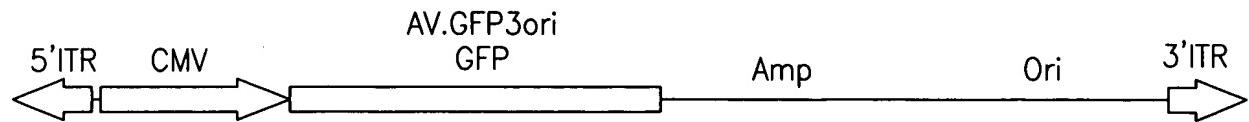


FIG. 1B



TITLE: A L10-ASSOCIATED VIRUS VECTORS AND USE THEREOF
INVENTORS NAME: John F. Engelhardt et al.
SERIAL NO.: 09/684,554

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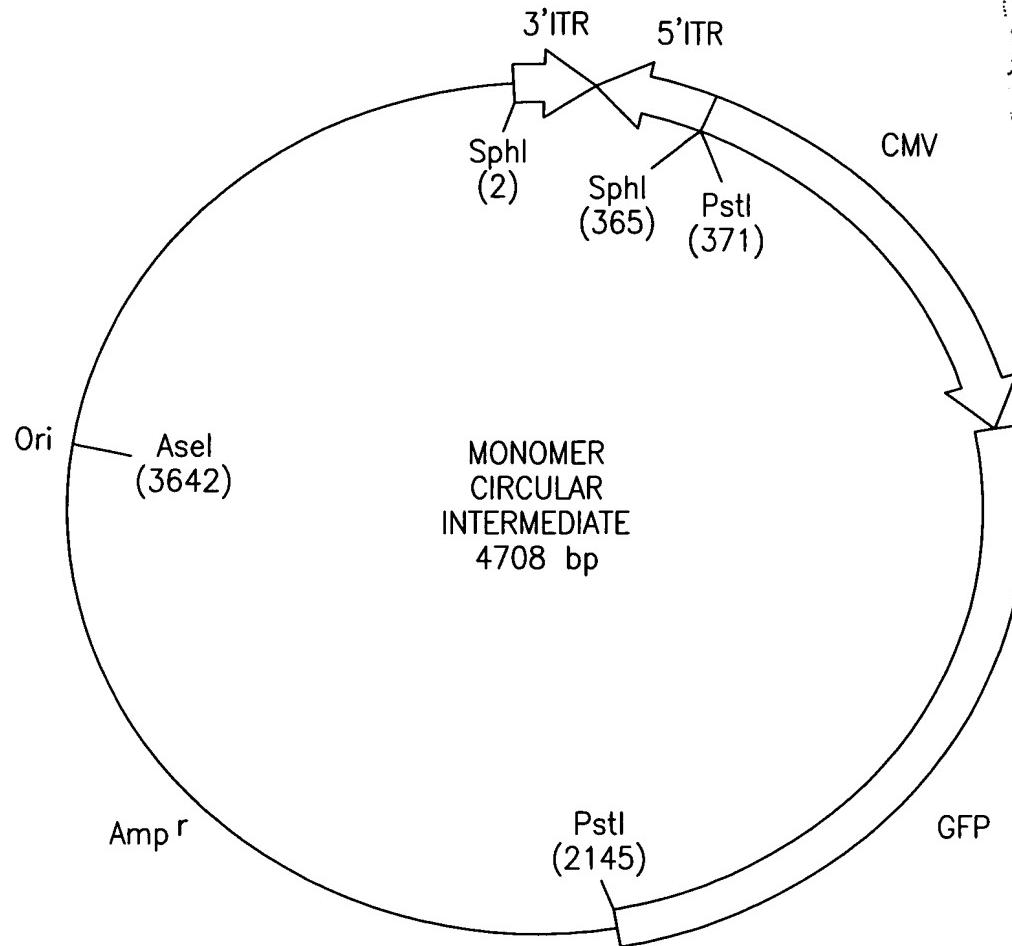


FIG. 1C



TITLE: AAV-ASSOCIATED VIRUS VECTORS AND USE THEREOF
INVENTORS NAME: John F. Engelhardt et al.
SERIAL NO.: 09/684,554

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INFECT HELA CELLS AND MUSCLE WITH AV.GFP3ori

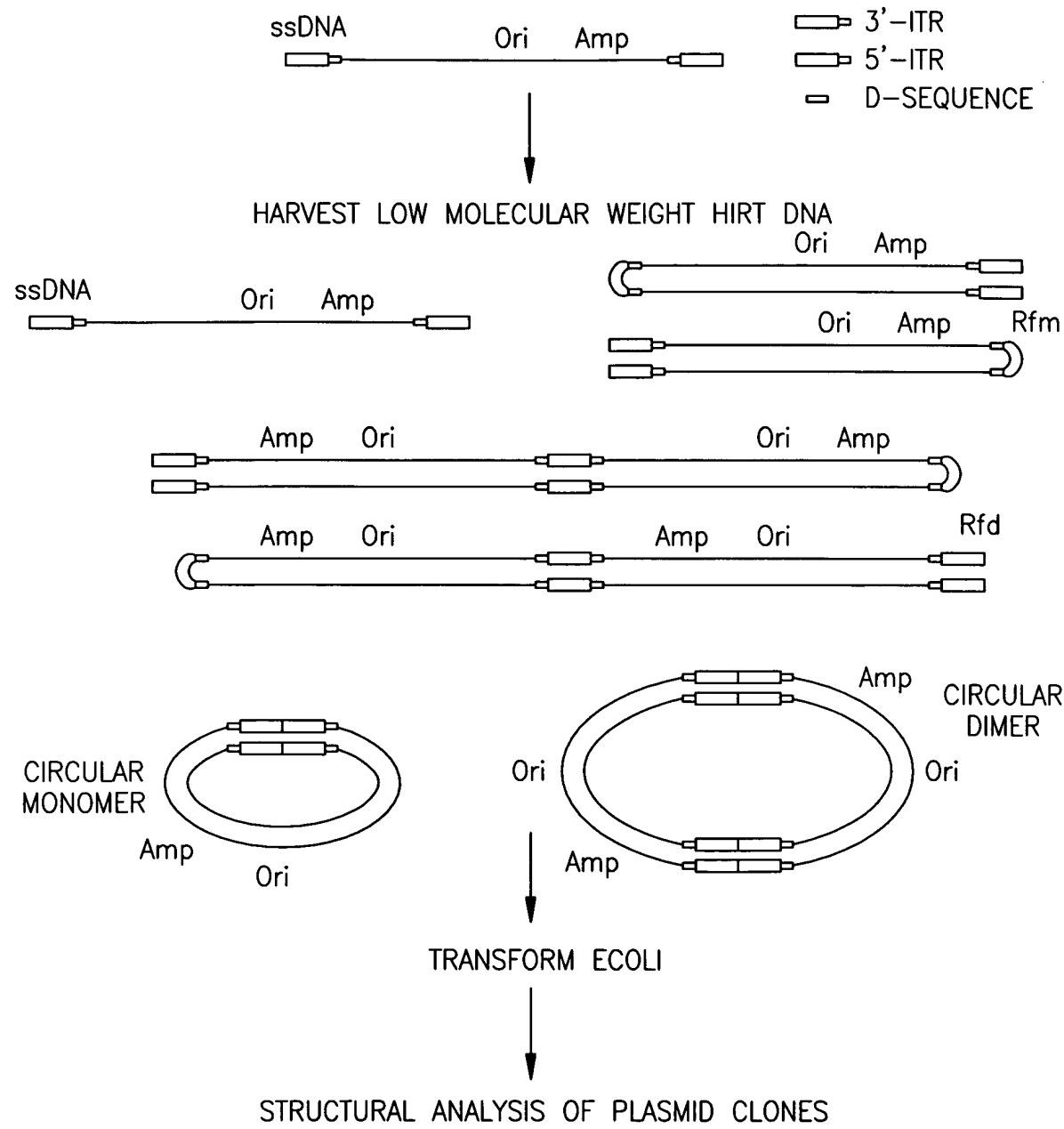


FIG. 1D



TITLE: APOO-ASSOCIATED VIRUS VECTORS AND USE THEREOF
INVENTORS NAME: John F. Engelhardt et al.
SERIAL NO.: 09/684,554

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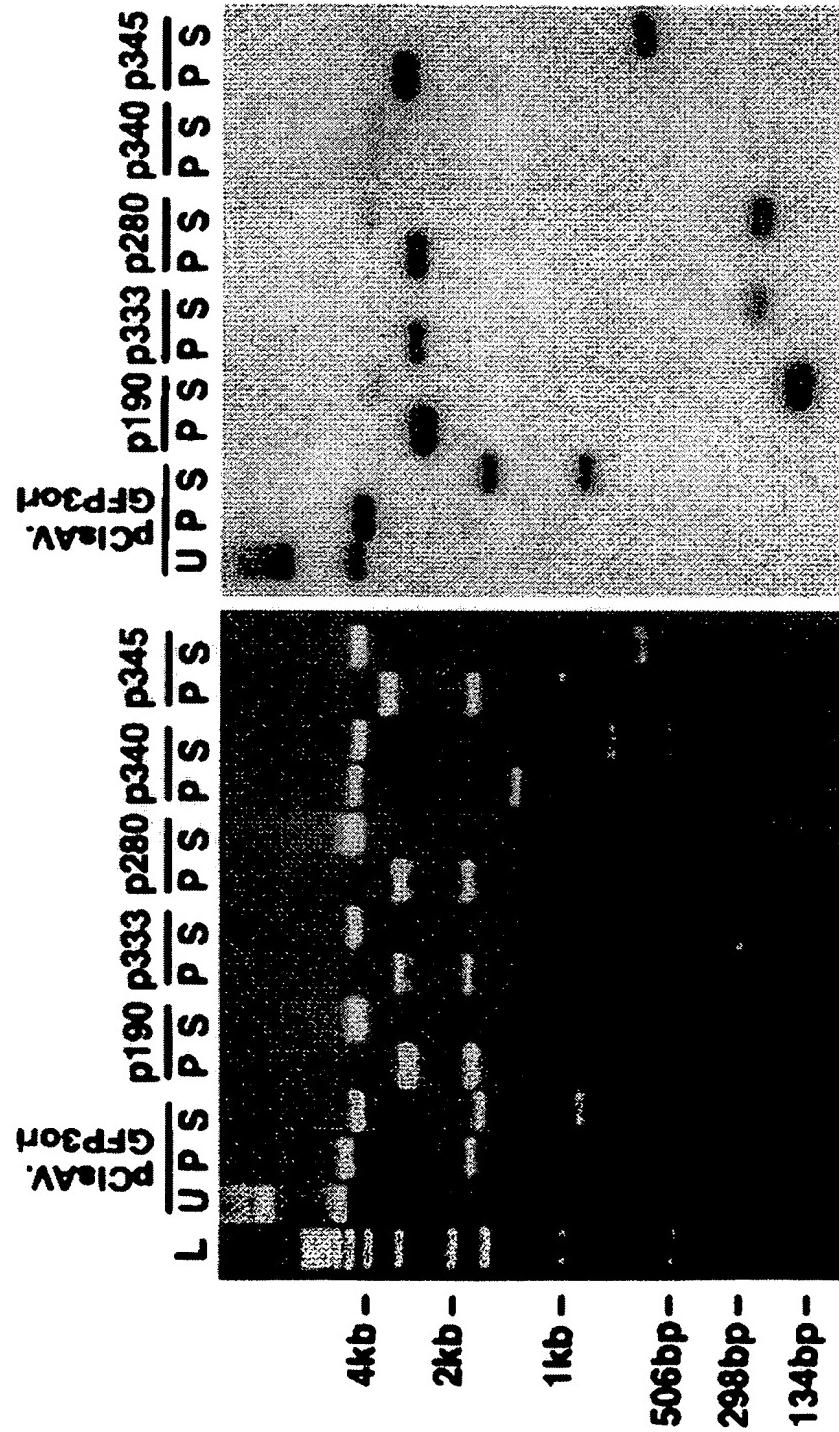


FIG. 2A



TITLE: A [REDACTED] -ASSOCIATED VIRUS VECTORS AND USE THEREOF
INVENTORS NAME: John F. Engelhardt et al.
SERIAL NO.: 09/684,554

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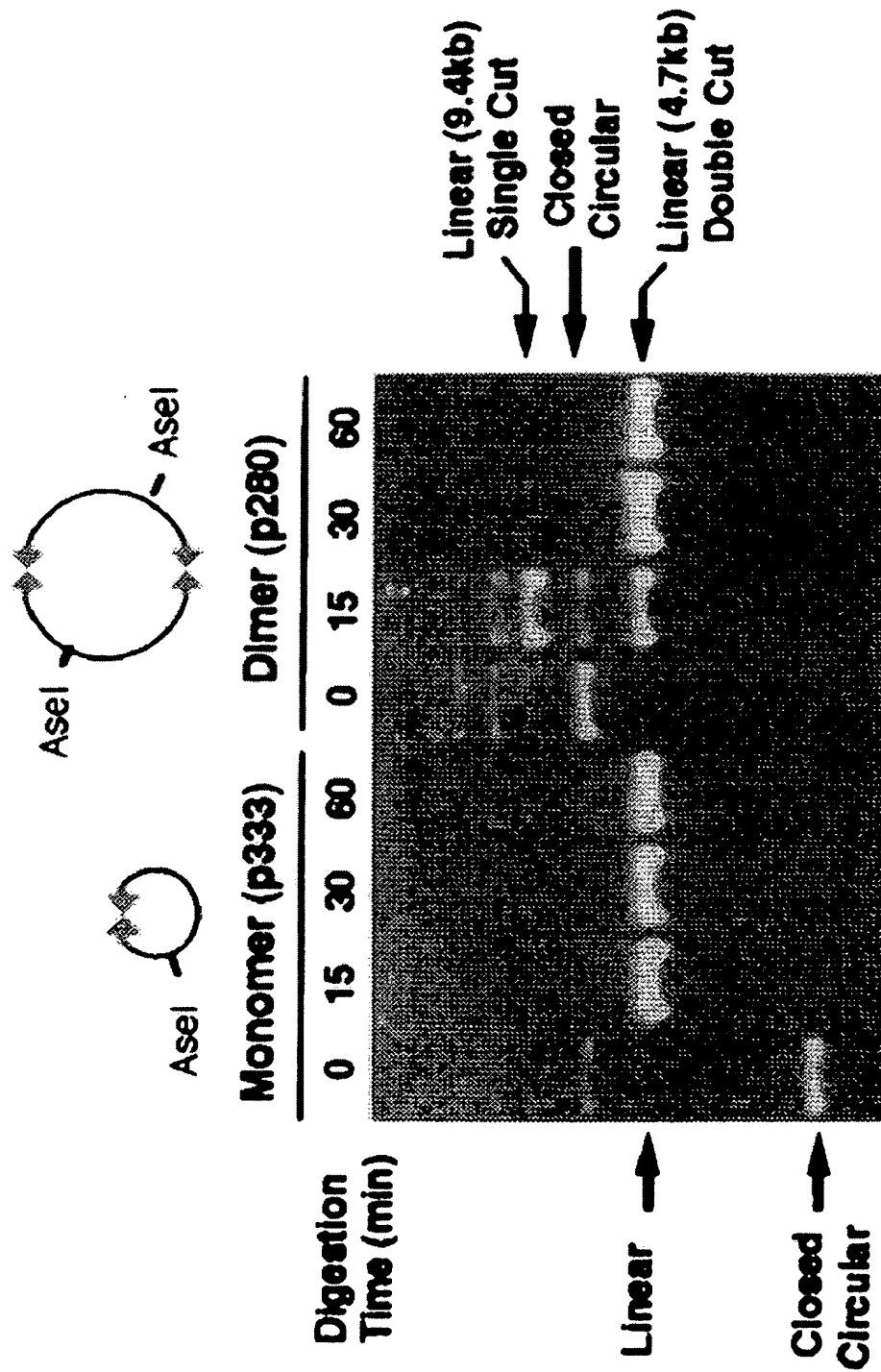


FIG. 2B



TITLE: A BLOO-ASSOCIATED VIRUS VECTORS AND USE THEREOF
INVENTOR'S NAME: John F. Engelhardt et al.
SERIAL NO.: 09/684,554

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5' <->3' ITR
 CCCGGCTCTG TGGGGCTCA GCAAGGGGG CCATTTACCG TAAGTTATGT AACGACTGCCA GGCATGCAAG CTCGAATTCA TCGGTAGATA AGTACATGG CGGGTATTC
 P79 ----- GGGGGG CCATTTACCG TAAGTTATGT AACGACTGCCA GGCATGCAAG CTCGAATTCA TCGGTAGATA AGTACATGG CGGGTATTC
 P80 ----- GGGGG-CC- CCATTTACCG TAAGTTATGT AACGACTGCCA GGCATGCAAG CTCGAATTCA TCGGTAGATA AGTACATGG CGGGTATTC
 P81 ----- GGGGG-G- CCATTTACCG TAAGTTATGT AACGACTGCCA GGCATGCAAG CTCGAATTCA TCGGTAGATA AGTACATGG CGGGTATTC
 P86 ----- GGGGG-G- CCATTTACCG TAAGTTATGT AACGACTGCCA GGCATGCAAG CTCGAATTCA TCGGTAGATA AGTACATGG CGGGTATTC
 P87 ----- GGGGG-G- CCATTTACCG TAAGTTATGT AACGACTGCCA GGCATGCAAG CTCGAATTCA TCGGTAGATA AGTACATGG CGGGTATTC
 P88 ----- GGGGG-G- CCATTTACCG TAAGTTATGT AACGACTGCCA GGCATGCAAG CTCGAATTCA TCGGTAGATA AGTACATGG CGGGTATTC

SmaI [80]
 10 20 30 40 50 60 70 80 90 100 110

5' <->3' ITR
 ATTAACTACA TGGGACCCC ATGATGAG TTGGCCACT CCTCTCTGG 140 150 160 170 180 190 200 210 220
 ATTggCTACA MAGAAGCCCT ATGATGAG TTGGCCACT CCTCTCTGG C-----
 P79 ATTAACTACA MAGAAGCCCT ATGATGAG TTGGCCACT CCTCTCTGG C-----
 P80 ATTAACTACA MAGAAGCCCT ATGATGAG TTGGCCACT CCTCTCTGG C-----
 P81 ATTggCTACA MAGAAGCCCT ATGATGAG TTGGCCACT CCTCTCTGG C-----
 P86 ATTAACTACA MAGAAGCCCT ATGATGAG TTGGCCACT CCTCTCTGG C-----
 P87 ATTggCTACA MAGAAGCCCT ATGATGAG TTGGCCACT CCTCTCTGG C-----
 P88 ATTggCTACA MAGAAGCCCT ATGATGAG TTGGCCACT CCTCTCTGG C-----
 SmaI [230]
 120 130 140 150 160 170 180 190 200 210 220

5' <->3' ITR
 GGCGGCCCTCA GCGAGGAGC GAGGGGGAG CTGGGGCTCA GCTCTCTGG TGAGGGCTCA 240 250 260 270 280 290 300 310 320 330
 P79 ----- GCGAGGAGC GAGGGGGAG CTGGGGCTCA GCTCTCTGG TGAGGGCTCA 240 250 260 270 280 290 300 310 320 330
 P80 ----- GCGAGGAGC GAGGGGGAG CTGGGGCTCA GCTCTCTGG TGAGGGCTCA 240 250 260 270 280 290 300 310 320 330
 P81 ----- GCGAGGAGC GAGGGGGAG CTGGGGCTCA GCTCTCTGG TGAGGGCTCA 240 250 260 270 280 290 300 310 320 330
 P86 ----- GCGAGGAGC GAGGGGGAG CTGGGGCTCA GCTCTCTGG TGAGGGCTCA 240 250 260 270 280 290 300 310 320 330
 P87 ----- GCGAGGAGC GAGGGGGAG CTGGGGCTCA GCTCTCTGG TGAGGGCTCA 240 250 260 270 280 290 300 310 320 330
 P88 ----- GCGAGGAGC GAGGGGGAG CTGGGGCTCA GCTCTCTGG TGAGGGCTCA 240 250 260 270 280 290 300 310 320 330
 SmaI [340]
 350 360 370 380 390 400 410 420 430 440

5' <->3' ITR
 CGGGGAGCA CGCAGAGGG GAGTGCCCAA CTCCATCACT AGGGGTCTCT TGTAGTTATG GATTCACAGC TTGCACTCAT GTGAGGAAA
 P79 ----- CGGGGAGCA CGCAGAGGG GAGTGCCCAA CTCCATCACT AGGGGTCTCT TGTAGTTATG GATTCACAGC TTGCACTCAT GTGAGGAAA
 P80 ----- CGGGGAGCA CGCAGAGGG GAGTGCCCAA CTCCATCACT AGGGGTCTCT TGTAGTTATG GATTCACAGC TTGCACTCAT GTGAGGAAA
 P81 ----- CGGGGAGCA CGCAGAGGG GAGTGCCCAA CTCCATCACT AGGGGTCTCT TGTAGTTATG GATTCACAGC TTGCACTCAT GTGAGGAAA
 P86 ----- CGGGGAGCA CGCAGAGGG GAGTGCCCAA CTCCATCACT AGGGGTCTCT TGTAGTTATG GATTCACAGC TTGCACTCAT GTGAGGAAA
 P87 ----- CGGGGAGCA CGCAGAGGG GAGTGCCCAA CTCCATCACT AGGGGTCTCT TGTAGTTATG GATTCACAGC TTGCACTCAT GTGAGGAAA
 P88 ----- CGGGGAGCA CGCAGAGGG GAGTGCCCAA CTCCATCACT AGGGGTCTCT TGTAGTTATG GATTCACAGC TTGCACTCAT GTGAGGAAA

SmaI [450]
 460 470 480 490 500 505

5' <->3' ITR
 GGGCAAGCAA AGGCCAGGAA CGGTAAGAA CGCGGAGTGC TGGGTCTCT CCATAGGCTC CGCCCG
 P79 GGGCAAGCAA AGGCCAGGAA CGGTAAGAA CGCGGAGTGC TGGGTCTCT CCATAGGCTC CGCCCG
 P80 GGGCAAGCAA AGGCCAGGAA CGGTAAGAA CGCGGAGTGC -----
 P81 GGGCAAGCAA AGGCCAGGAA CGGTAAGAA CGCGGAGTGC -----
 P86 GGGCAAGCAA AGGCCAGGAA CGGTAAGAA CGCGGAGTGC -----
 P87 GGGCAAGCAA AGGCCAGGAA CGGTAAGAA CGCGGAGTGC -----
 P88 GGGCAAGCAA AGGCCAGGAA CGGTAAGAA CGCGGAGTGC -----

FIG. 2C

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TITLE: AAV-ASSOCIATED VIRUS VECTORS AND USE THEREOF
INVENTORS NAME: John F. Engelhardt et al.
SERIAL NO.: 09/684,554

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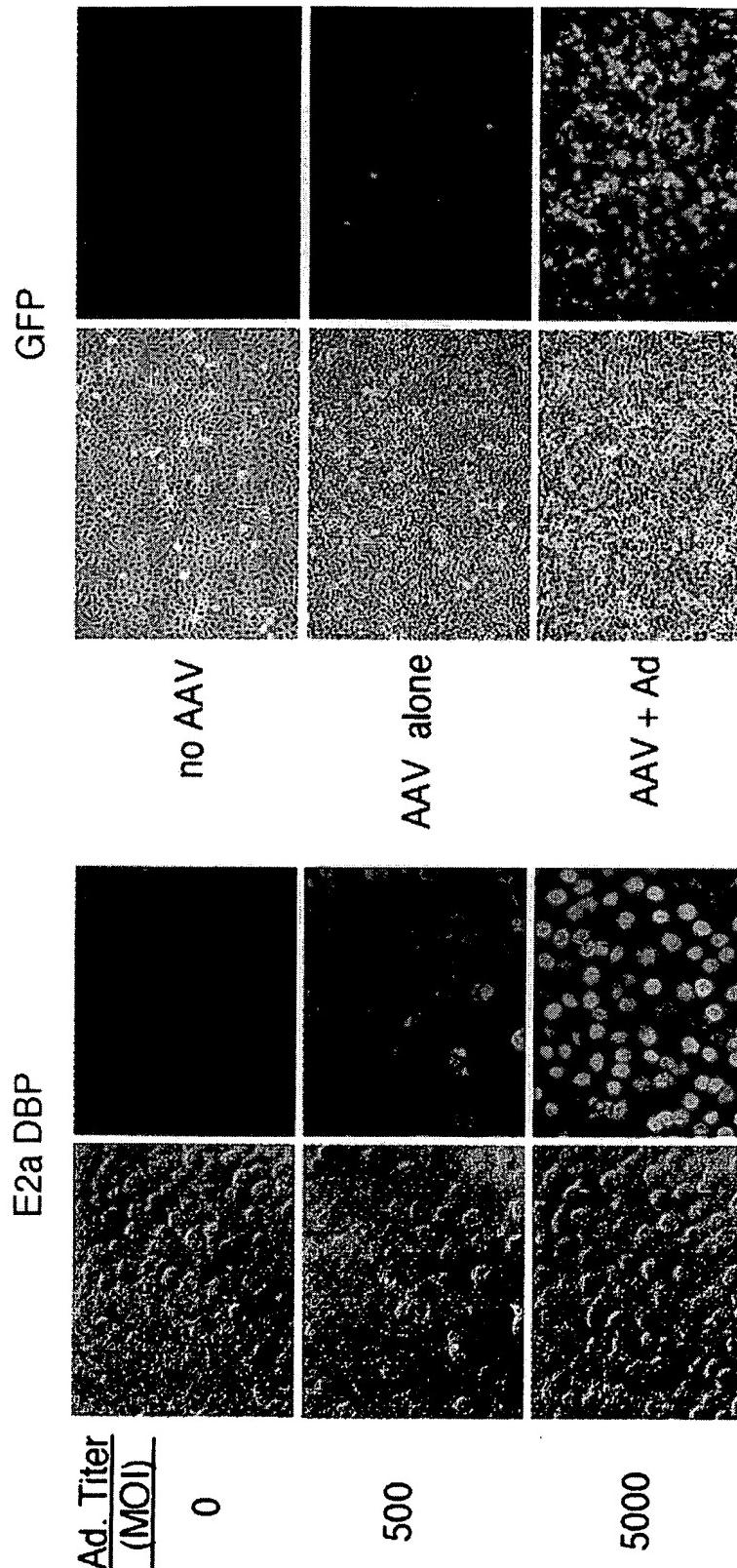


FIG. 3A
FIG. 3B



TITLE: AAV-ASSOCIATED VIRUS VECTORS AND USE THEREOF
 INVENTORS NAME: John F. Engelhardt et al.
 SERIAL NO.: 09/684,554

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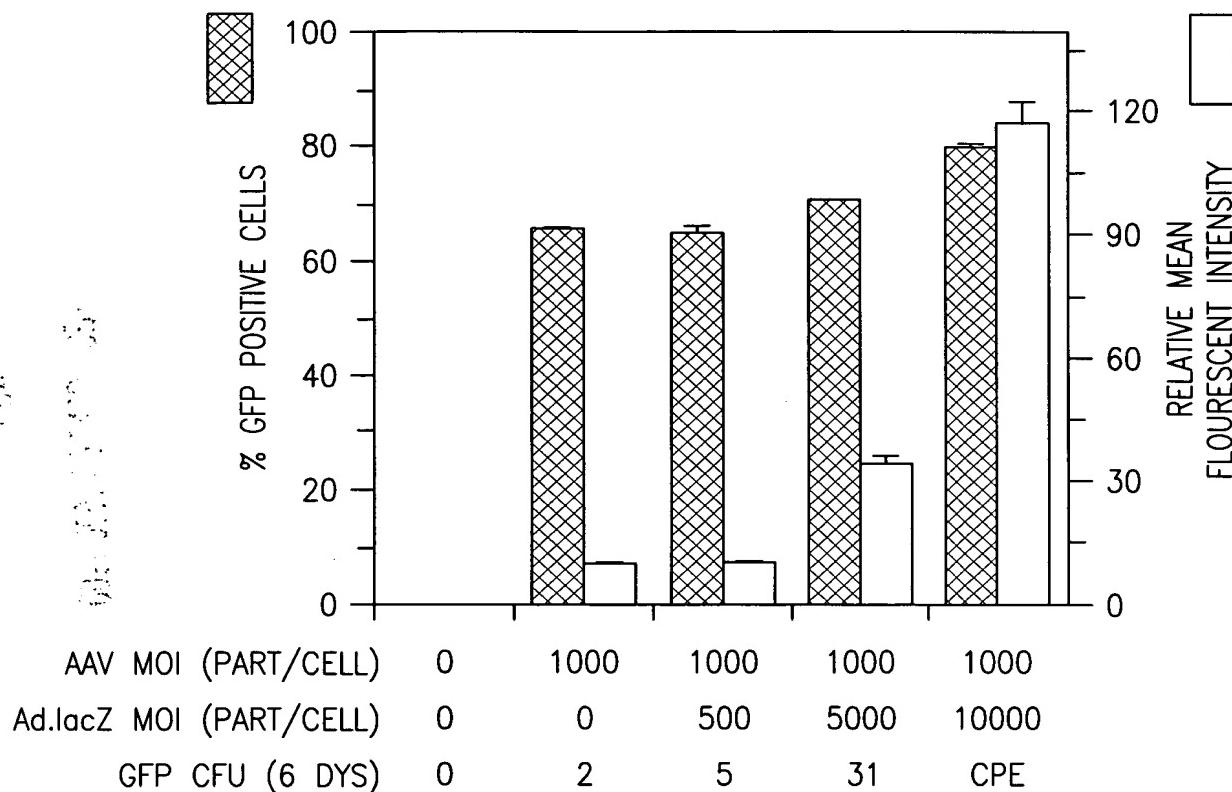


FIG. 3C

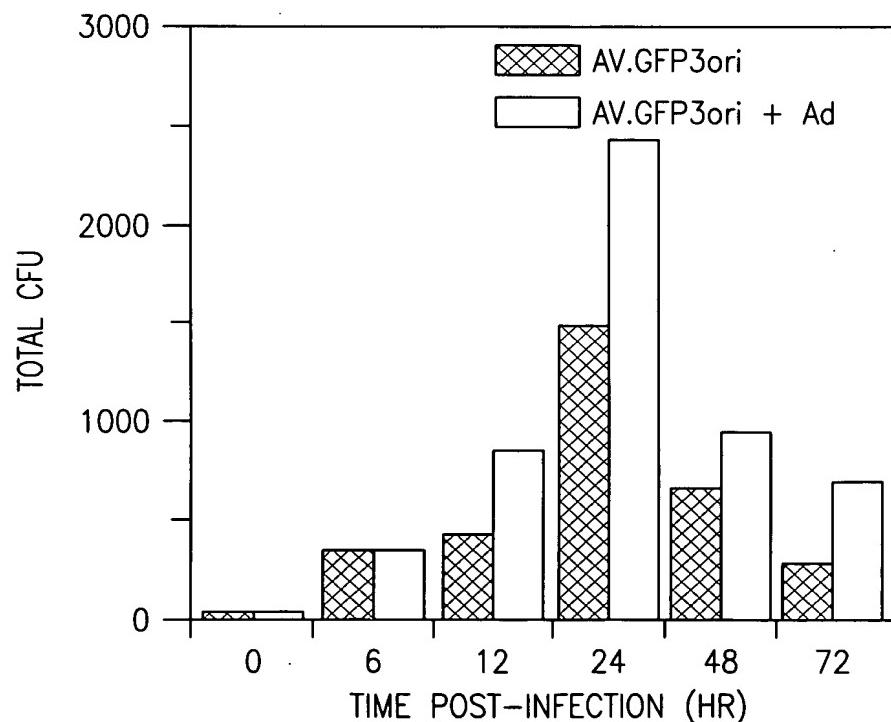


FIG. 3D



TITLE: APO-ASSOCIATED VIRUS VECTORS AND USE THEREOF
INVENTORS NAME: John F. Engelhardt et al.
SERIAL NO.: 09/684,554

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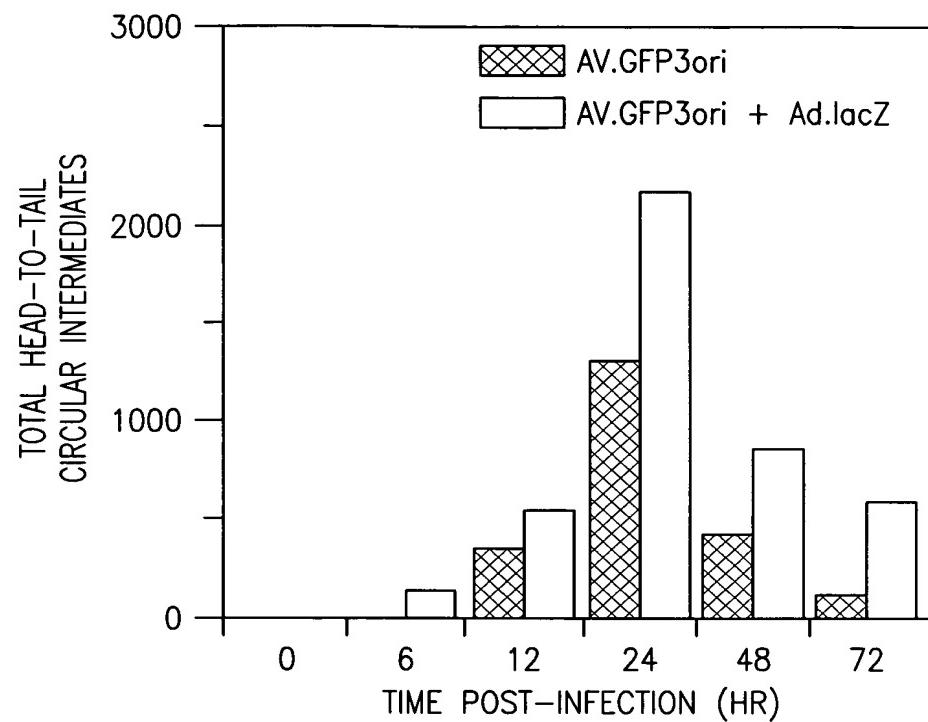


FIG. 3E

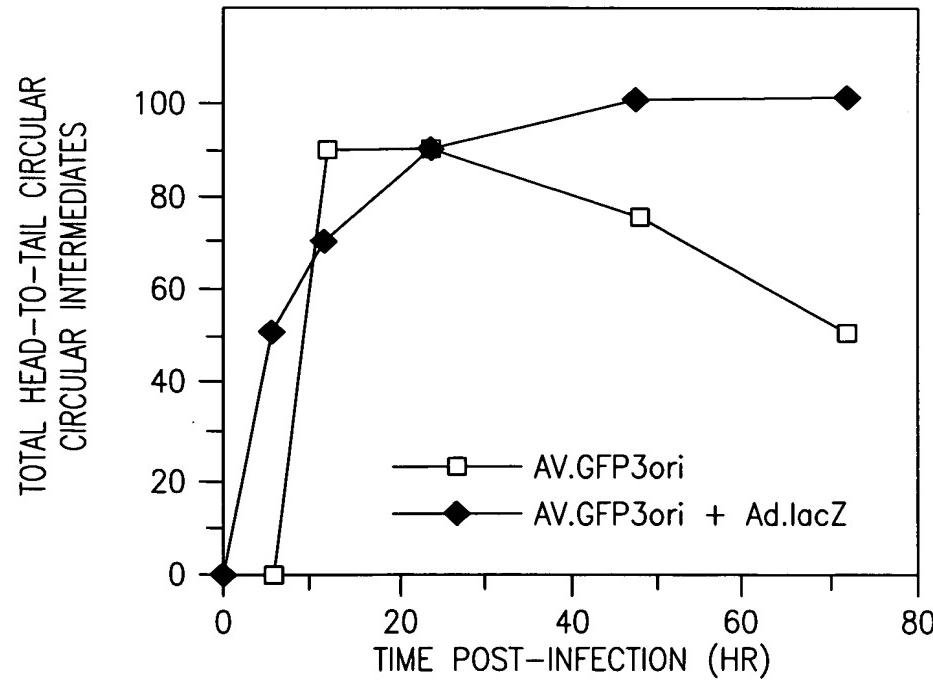


FIG. 3F

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INDEXED
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AUG 13 2003
SEARCHED & INDEXED

TITLE: A HCV-ASSOCIATED VIRUS VECTORS AND USE THEREOF
INVENTORS NAME: John F. Engelhardt et al.
SERIAL NO.: 09/684,554

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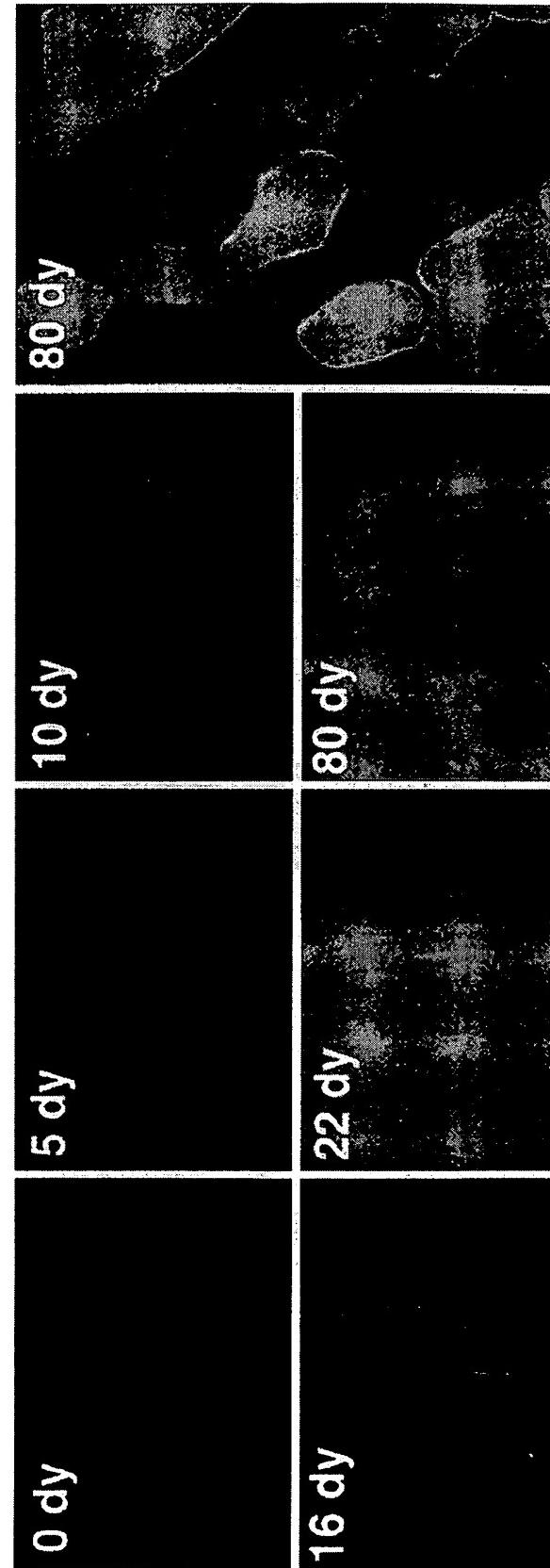


FIG. 4A



TITLE: A BACTERIO-ASSOCIATED VIRUS VECTORS AND USE THEREOF
INVENTORS NAME: John F. Engelhardt et al.
SERIAL NO.: 09/684,554

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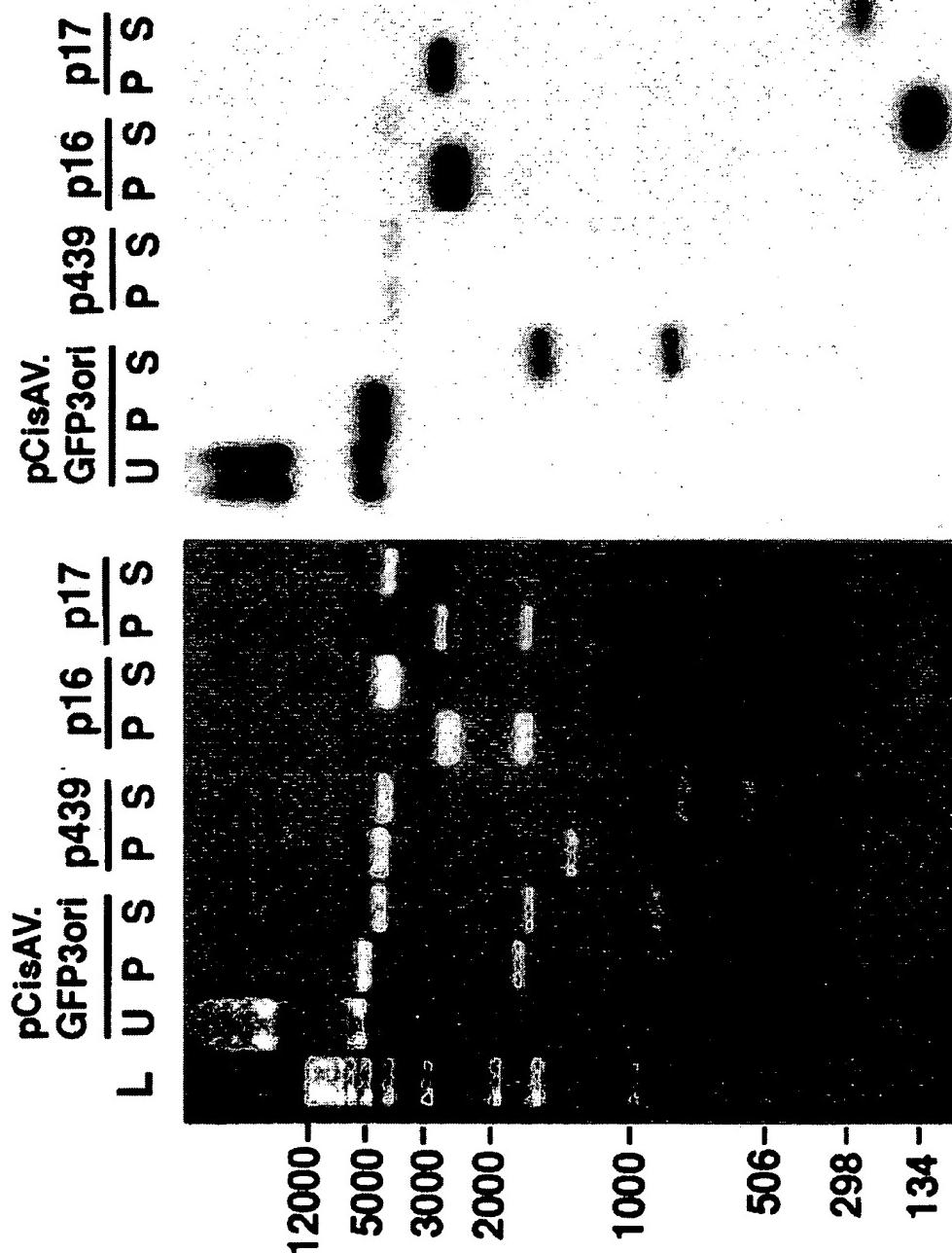
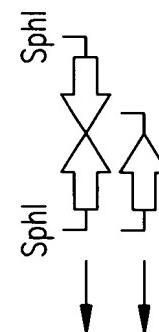


FIG. 4B



TITLE: A LENTIVIRUS-ASSOCIATED VIRUS VECTORS AND USE THEREOF
INVENTORS NAME: John F. Engelhardt et al.
SERIAL NO.: 09/684,554

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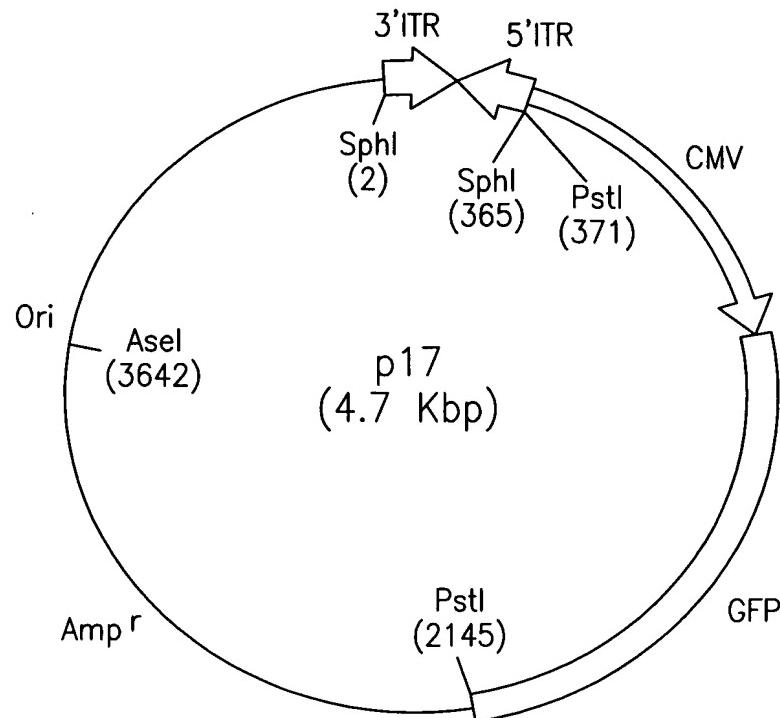


FIG. 4C

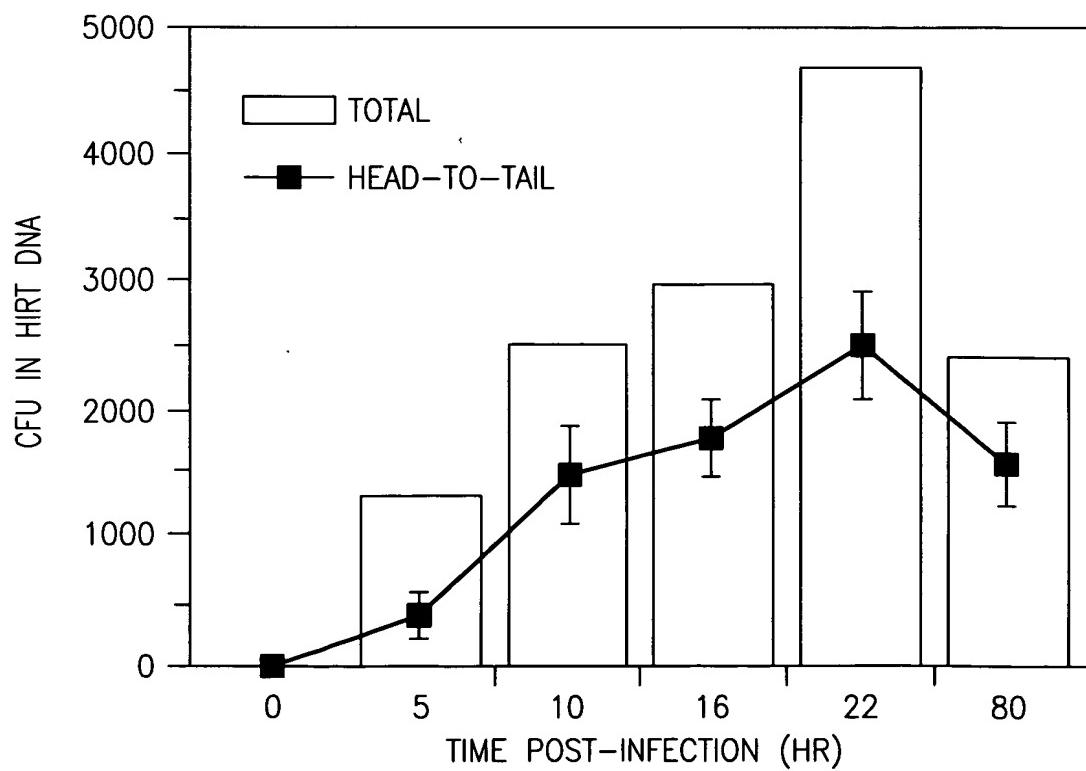


FIG. 5A



TITLE: A ~~HO~~-ASSOCIATED VIRUS VECTORS AND USE THEREOF
INVENTORS NAME: John F. Engelhardt et al.
SERIAL NO.: 09/684,554

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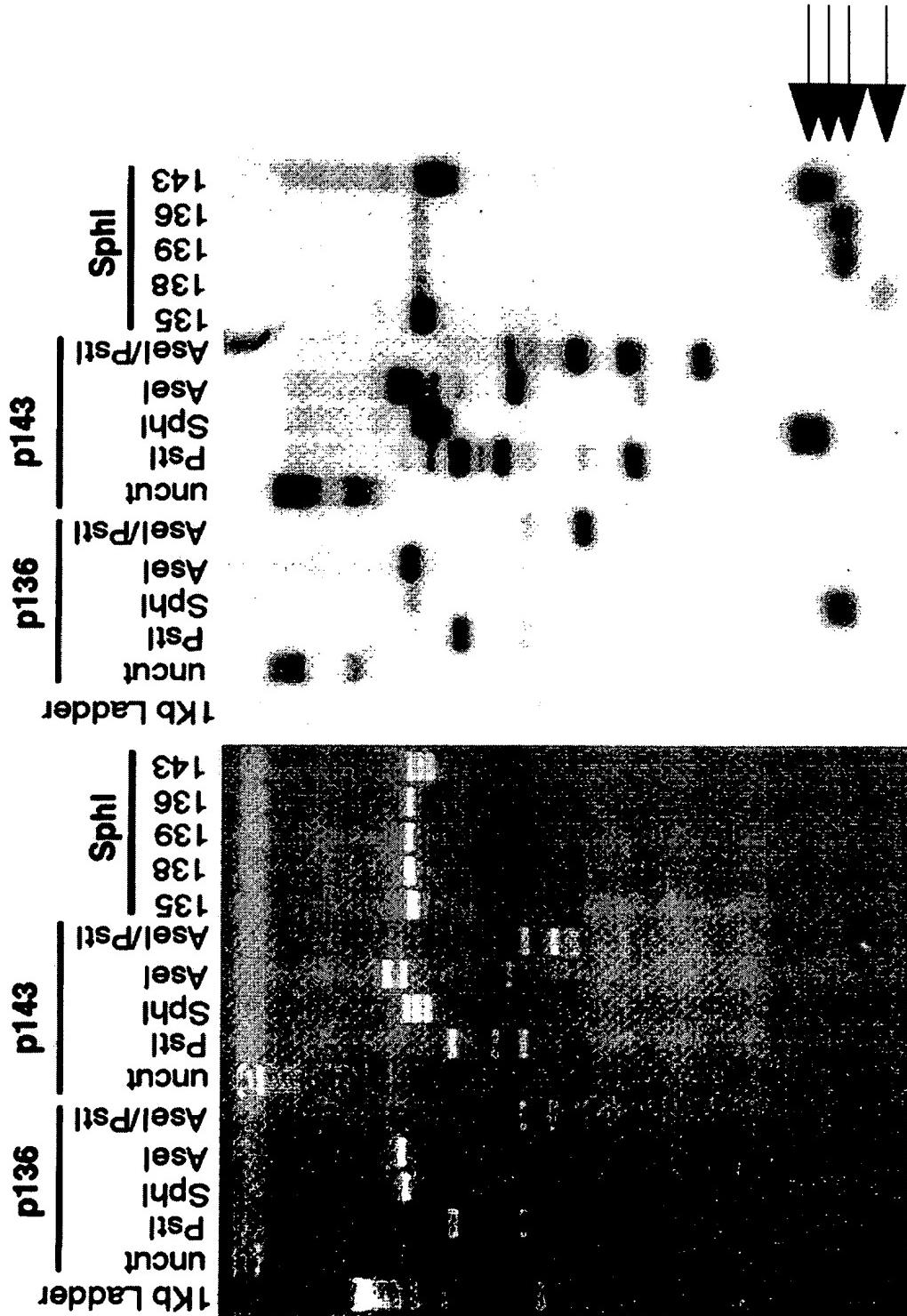


FIG. 5B



TITLE: APO-ASSOCIATED VIRUS VECTORS AND USE THEREOF
INVENTORS NAME: John F. Engelhardt et al.
SERIAL NO.: 09/684,554

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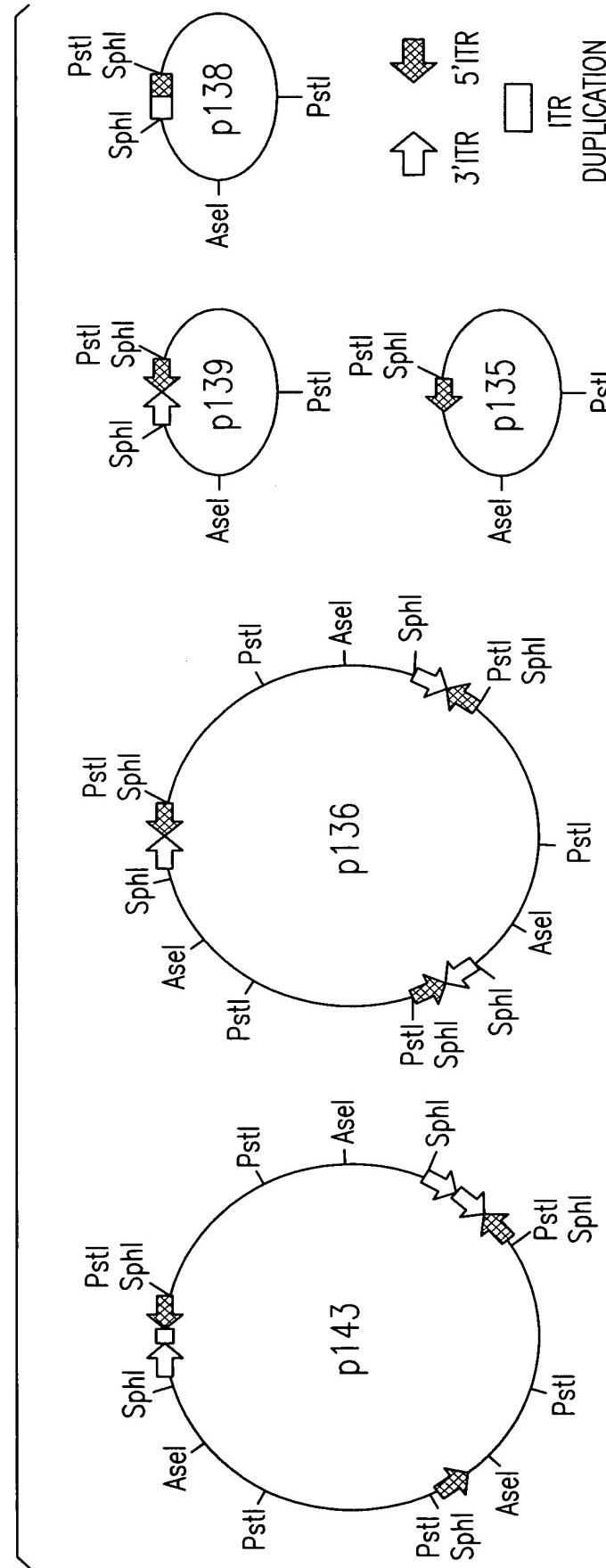


FIG. 5C



TITLE: A BLOO-ASSOCIATED VIRUS VECTORS AND USE THEREOF
INVENTORS NAME: John F. Engelhardt et al.
SERIAL NO.: 09/684,554

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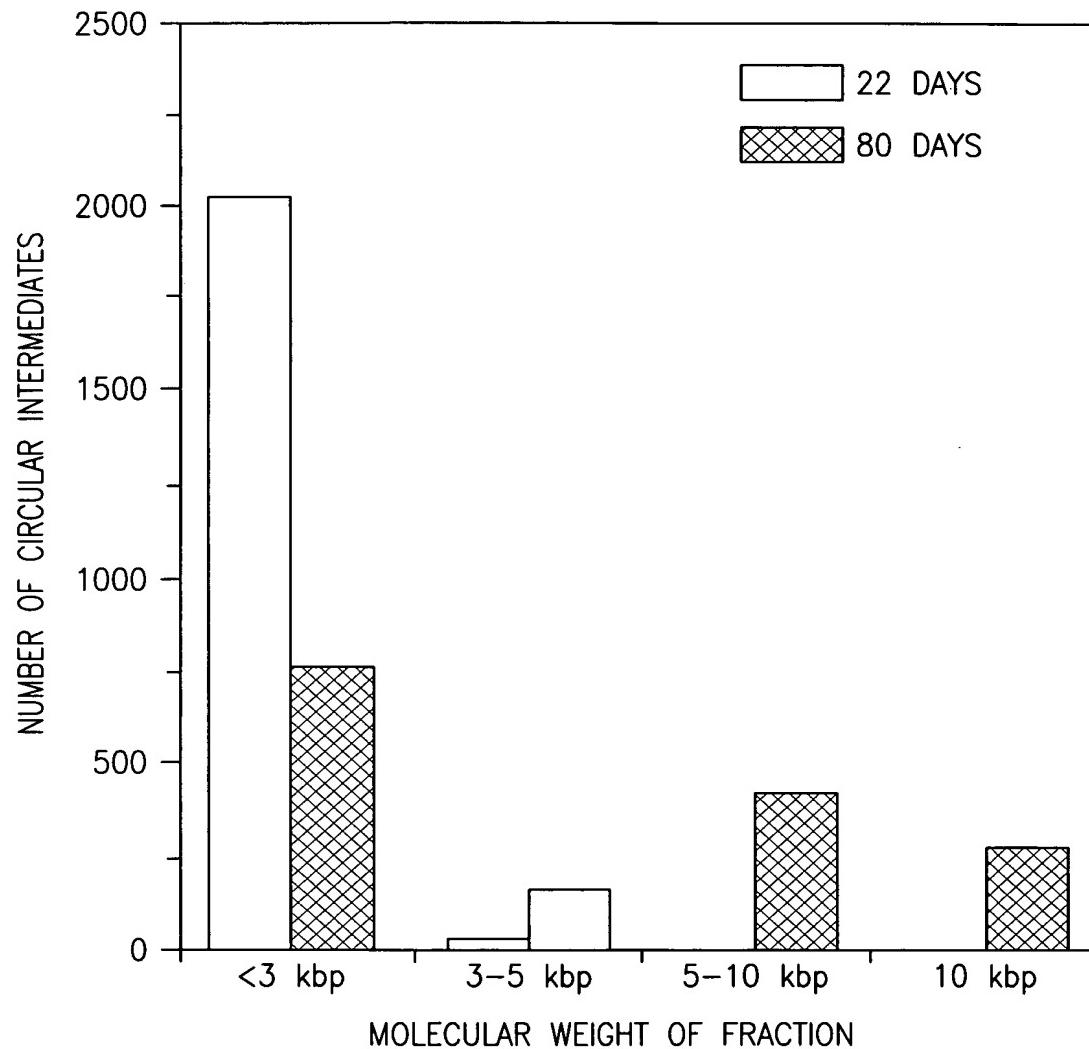


FIG. 6

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JC87

TITLE: NO-ASSOCIATED VIRUS VECTORS AND USE THEREOF
INVENTORS NAME: John F. Engelhardt et al.
SERIAL NO.: 09/684,554

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p81
p87
pCMVGFP

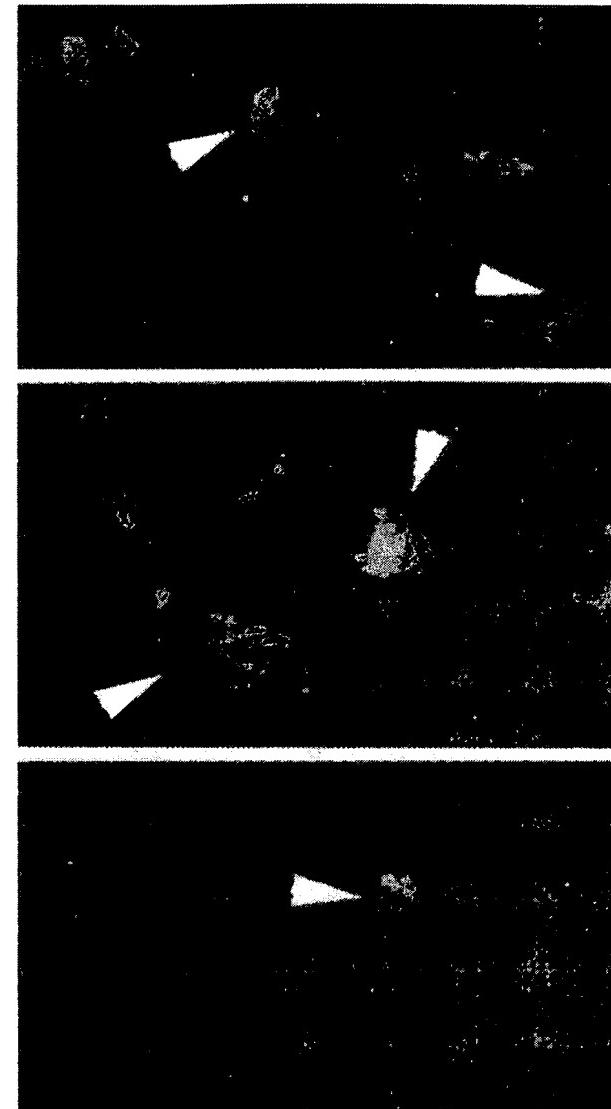


FIG. 7A



TITLE: ENO-ASSOCIATED VIRUS VECTORS AND USE THEREOF
INVENTORS NAME: John F. Engelhardt et al.
SERIAL NO.: 09/684,554

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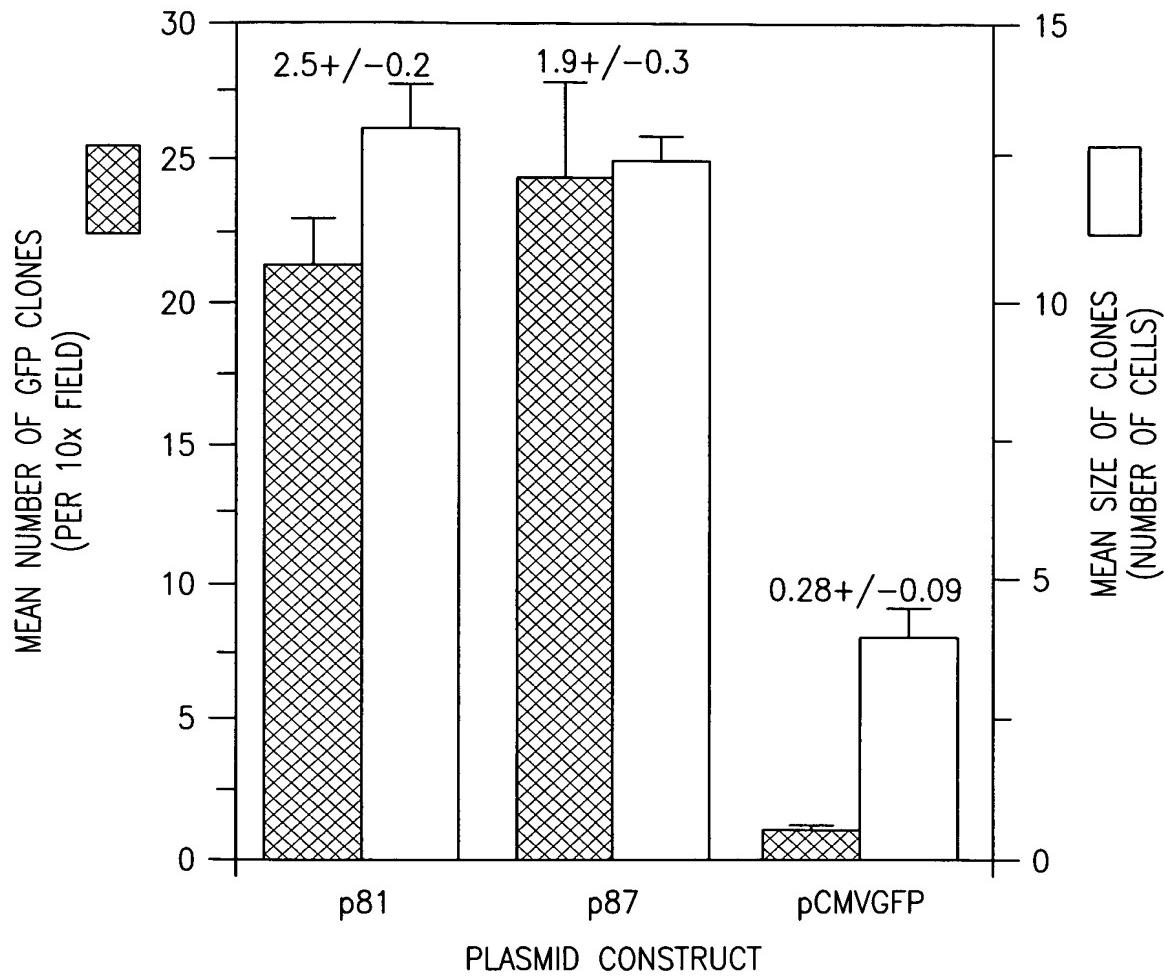


FIG. 7B

O I P E JCB
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TITLE: NO-ASSOCIATED VIRUS VECTORS AND USE THEREOF
INVENTORS NAME: John F. Engelhardt et al.
SERIAL NO.: 09/684,554

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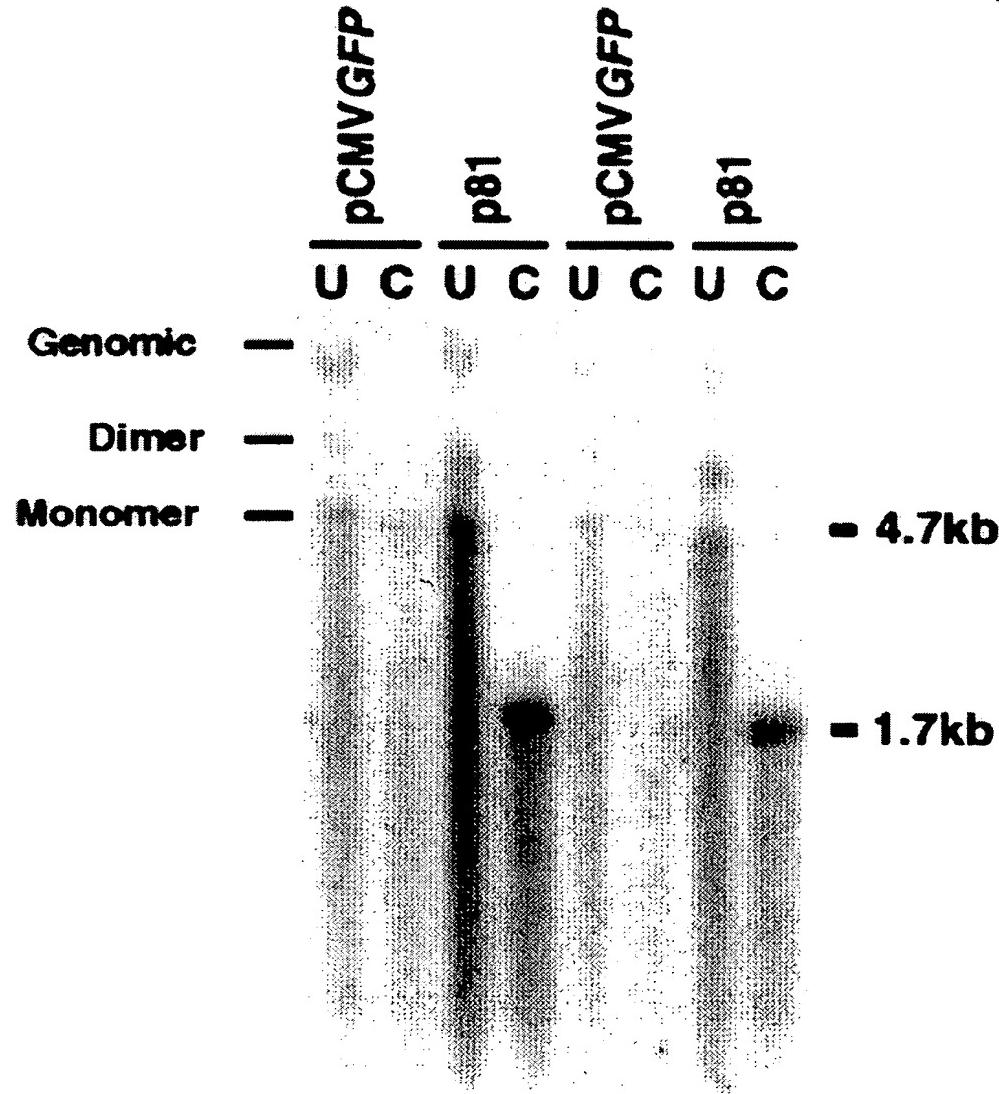


FIG. 7C

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JCBT

TITLE: NO-ASSOCIATED VIRUS VECTORS AND USE THEREOF
INVENTORS NAME: John F. Engelhardt et al.
SERIAL NO.: 09/684,554

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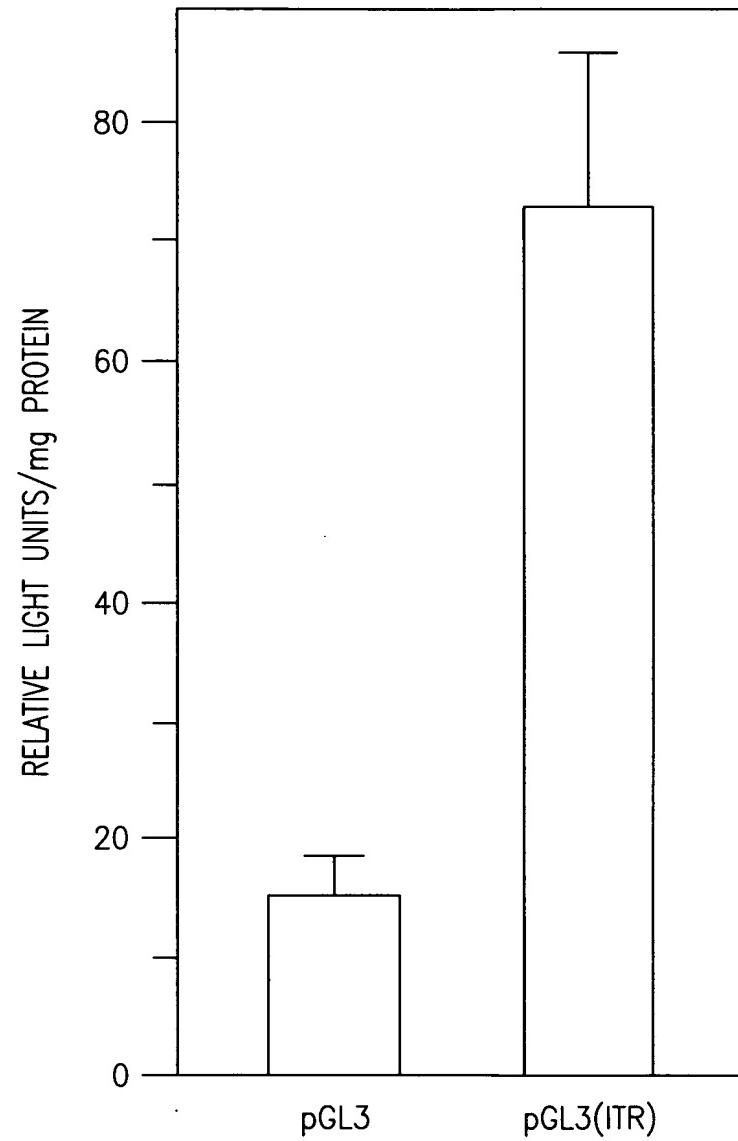


FIG. 7D

TITLE: NO-ASSOCIATED VIRUS VECTORS AND USE THEREOF
INVENTORS NAME: John F. Engelhardt et al.
SERIAL NO.: 09/684,554

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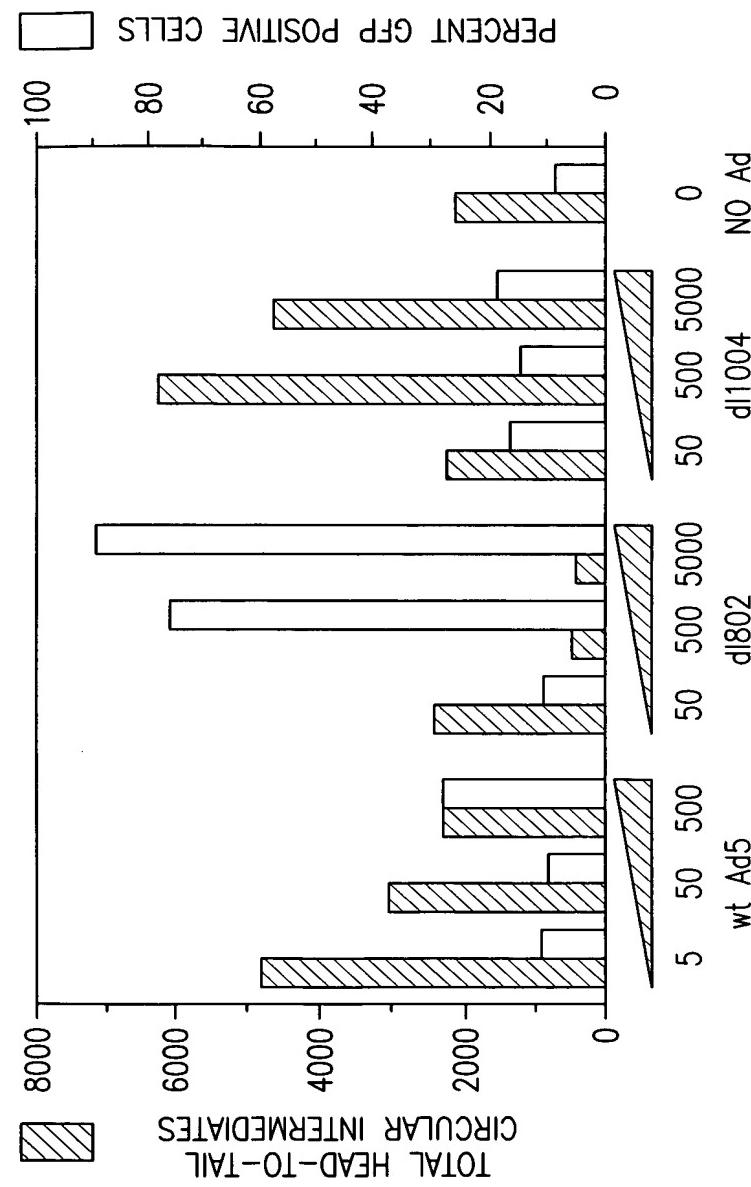


FIG. 8A



TITLE: ADENO-ASSOCIATED VIRUS VECTORS AND USE THEREOF
INVENTORS NAME: John F. Engelhardt et al.
SERIAL NO.: 09/684,554

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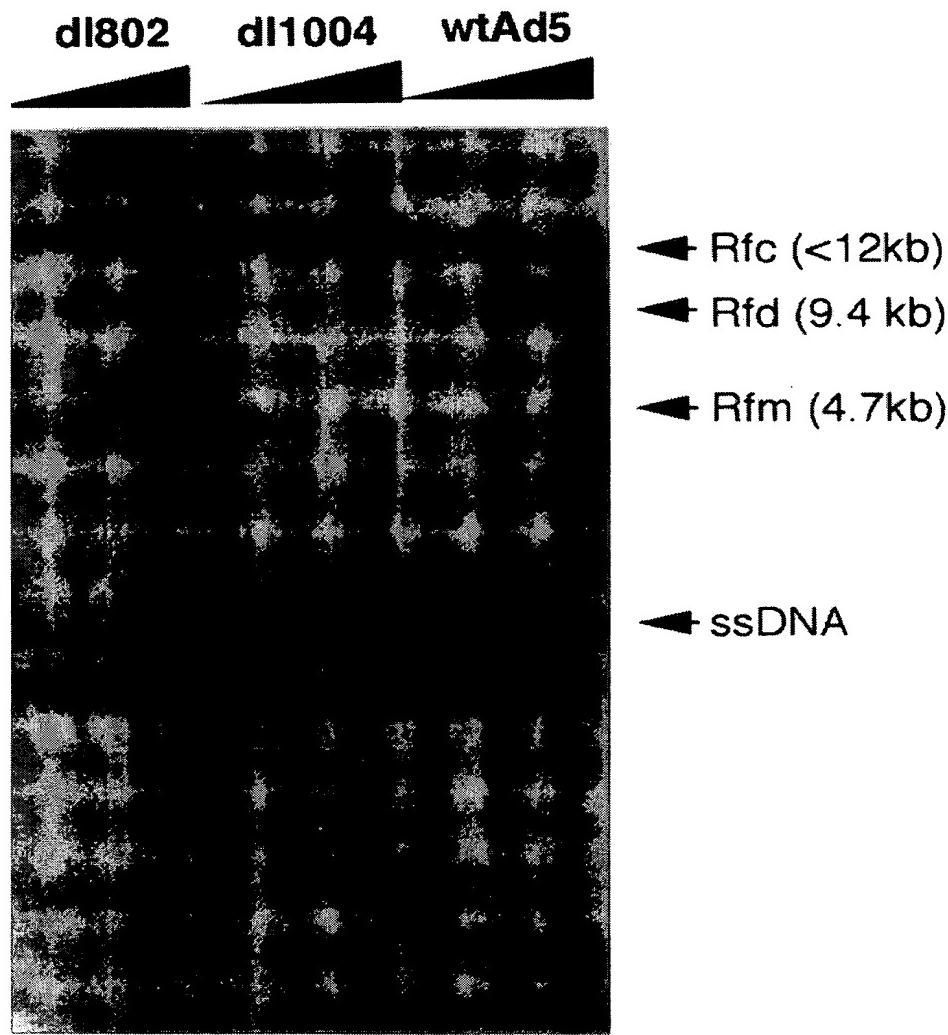


FIG. 8B



TITLE: AAV-ASSOCIATED VIRUS VECTORS AND USE THEREOF
INVENTORS NAME: John F. Engelhardt et al.
SERIAL NO.: 09/684,554

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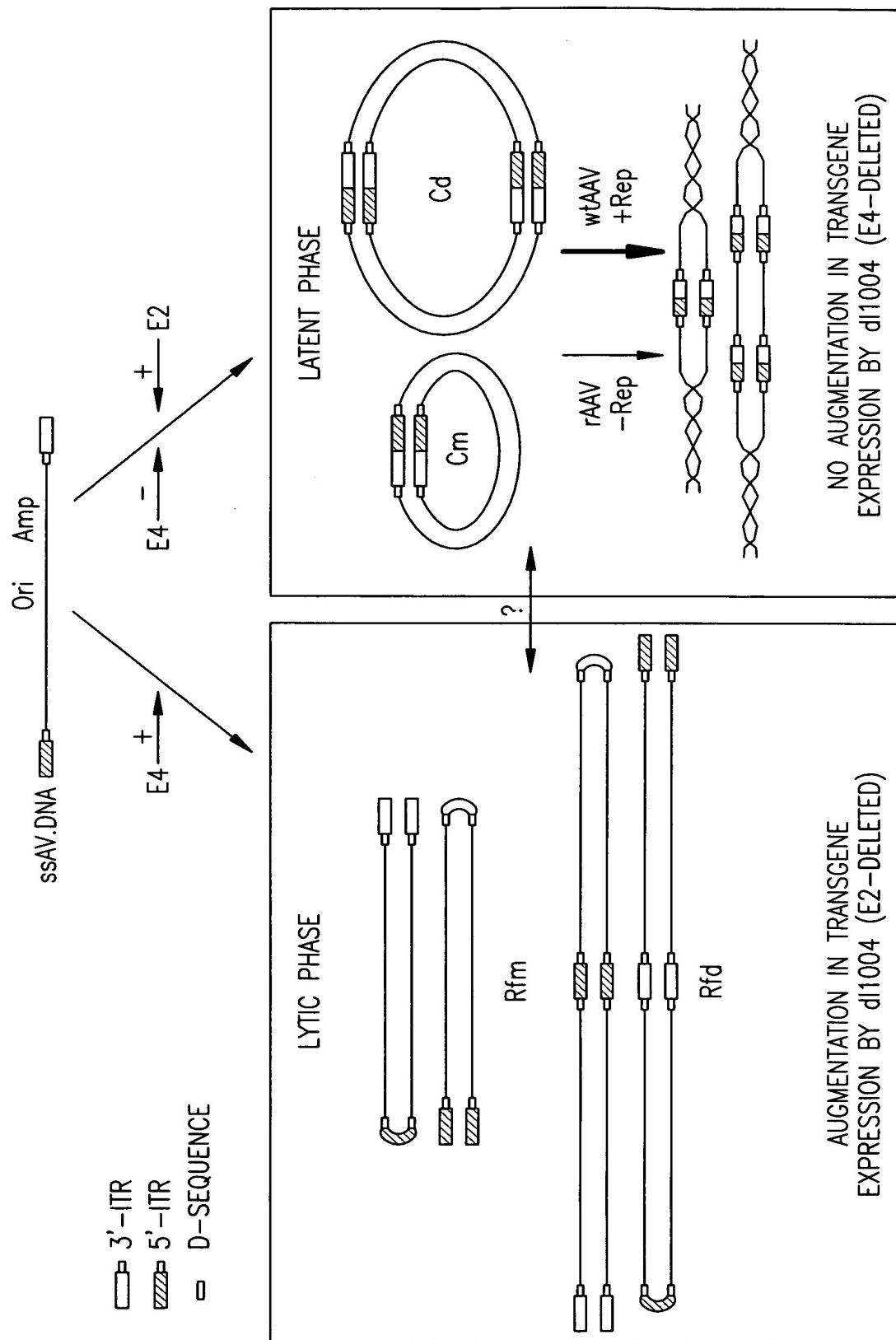


FIG. 9



TITLE: NO-ASSOCIATED VIRUS VECTORS AND USE THEREOF
INVENTORS NAME: John F. Engelhardt et al.
SERIAL NO.: 09/684,554

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10 20 30 40 50 60
GCATGCAAGC TGTAGATAAG TAGCATGGCG GGTTAACAT TAACCTACAAG GAACCCCTAG
CGTACGTTCG ACATCTATTC ATCGTACCGC CCAATTAGTA ATTGATGTTA CTTGGGGATC

70 80 90 100 110 120
TGATGGAGTT GGCCACTCCC TCTCTGCGCG CTCGCTCGCT CACTGAGGCC GGGCGGCCAA
ACTACCTCAA CCGGTGAGGG AGAGACGCGC GAGCGAGCGA GTGACTCCGG CCCGCCGGTT

130 140 150 160 170 180
AGGTCGCCCCG ACGCCCGGGC TTTGCCCGGG CGGCCTCAGT GAGCGAGCGA GCGCGCAGAG
TCCAGCGGGC TGCAGGGCCG AAACGGGCC GCGGGAGTCA CTCGCTCGCT CGCGCGTCTC

190 200 210 220 230 240
AGGGAGTGGC CAACTCCATC ACTAGGGGTT CCTTGATGTT AATGATTAAC CCGCCATGCT
TCCCTCACCG GTTGAGGTAG TGATCCCCAA GGAACATCAA TTACTAATTG GGCAGTACGA

250 260 270 280
ACTTATCTAC CGATGAATTG GAGCTTGCAT GC.....
TGAATAGATG GCTACTTAAG CTCGAACGTA CG.....

FIG. 10A

10 20 30 40 50 60
GCATGCAAGC TGTAGATAAG TAGCATGGCG GGTTAACAT TAACCTACAAG GAACCCCTAG
CGTACGTTCG ACATCTATTC ATCGTACCGC CCAATTAGTA ATTGATGTTA CTTGGGGATC

70 80 90 100 110 120
TGATGGAGTT GGCCACTCCC TCTCTGCGCG CTCGCTCGCT CACTGAGGCC GGGCGGCCGC
ACTACCTCAA CCGGTGAGGG AGAGACGCGC GAGCGAGCGA GTGACTCCGG CCCGCCGGCG

130 140 150 160 170 180
TCGCTCGCTC ACTGAGGCCG GGCGACCAAA GGTCGCCGA GCCCGGGCTT TGCCCGGGCG
AGCGAGCGAG TGACTCCGGC CCGCTGGTT CCAGCGGGCT CGGGCCCGAA ACGGGCCCGC

190 200 210 220 230 240
GCCTCAGTGA GCGAGCGCGC GCGCAGAGAG GGAGTGGCCA ACTCCATCAC TAGGGGTTCC
CGGAGTCACT CGCTCGCGCG CGCGCTCTC CCTCACCGGT TGAGGTAGTG ATCCCCAAGG

250 260 270 280 290 300
TTGTAGTTAA TGATTAACCC GCCATGCTAC TTATCTACCG ATGAATTGGA GCTTGGATGC
AACATCAATT ACTAATTGGG CGGTACGATG AATAGATGGC TACTTAAGCT CGAACGTAAGG

FIG. 10B



TITLE: APOLO-ASSOCIATED VIRUS VECTORS AND USE THEREOF
INVENTORS NAME: John F. Engelhardt et al.
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10 20 30 40 50 60
GCATGCAAGC TGTAGATAAG TAGCATGGCG GGTTAACAT TAACCTACAAG GAACCCCTAG
CGTACGTTCG ACATCTATTG ATCGTACCGC CCAATTAGTA ATTGATGTTG CTTGGGGATC

70 80 90 100 110 120
TGATGGAGTT GGCCACTCCC TCTCTGCGCG CTCGCTCGCT CACTGAGGCC GGGCGACCAA
ACTACCTCAA CCGGTGAGGG AGAGACGGCG GAGCGAGCGA GTGACTCCGG CCCGCTGGTT

130 140 150 160 170 180
AGGTGCCCCG ACGCCCGGGC TTTGGTCGCC CGGCCTCAGT GAGCGAGCGA GCGCGCAGAG
TCCAGCGGGC TGCGGGCCCG AAACCAGCGG GCCGGAGTCA CTCGCTCGCT CGCGCGTCTC

190 200 210 220 230 240
AGGGAGTGGC CAACTCCATC ACTAGGGGTT CCTTGTAGTT AATGATTAAC CCGCCATGCT
TCCCTCACCG GTTGAGGTAG TGATCCCCAA GGAACATCAA TTACTAATTG GGCGGTACGA

250 260 270 280
ACTTATCTAC CGATGAATTG GAGCTTGCAT GC.....
TGAATAGATG GCTACTTAAG CTCGAACGTA CG.....

FIG. 10C



TITLE: APO-ASSOCIATED VIRUS VECTORS AND USE THEREOF
 INVENTORS NAME: John F. Engelhardt et al.
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| | 10 | 20 | 30 | 40 | 50 |
|-------|--|---------|-----|-----|-----|
| P81 | 1 GCATGCAAGC TGTAGATAAG TAGCATGGCG GGTTAATCAT TAACTACAAG | 50 | | | |
| p79 | 1 GCATGCAAGC TGTAGATAAG TAGCATGGCG GGTTAATCAT TAACTACAAG | 50 | | | |
| p1202 | 1 GCATGCAAGC TGTAGATAAG TAGCATGGCG GGTTAATCAT TAACTACAAG | 50 | | | |
| | 60 | 70 | 80 | 90 | 100 |
| P81 | 51 GAACCCCTAG TGATGGAGTT GGCCACTCCC TCTCTGCGCG CTCGCTCGCT | 100 | | | |
| p79 | 51 GAACCCCTAG TGATGGAGTT GGCCACTCCC TCTCTGCGCG CTCGCTCGCT | 100 | | | |
| p1202 | 51 GAACCCCTAG TGATGGAGTT GGCCACTCCC TCTCTGCGCG CTCGCTCGCT | 100 | | | |
| | 110 | 120 | 130 | 140 | 150 |
| P81 | 101 CACTGAGGCC GGGCG----- ----- ----- ----- | GCCAAAG | 150 | | |
| p79 | 101 CACTGAGGCC GGGCGCGCGC TCGCTCGCTC ACTGAGGCCG GGCGaCcAAa | 150 | | | |
| p1202 | 101 CACTGAGGCC GGGCG----- ----- ----- ----- | ACCAAAG | 150 | | |
| | 160 | 170 | 180 | 190 | 200 |
| P81 | 151 GTCGCCCGAC GCCCGGGCTT TGCCCGGGCG GCCTCAGTGA GCGAGCGAGC | 200 | | | |
| p79 | 151 GgtcgCCCGa GCCCGGGCTT TGCCCGGGCG GCCTCAGTGA GCGAGCGAGC | 200 | | | |
| p1202 | 151 GTCGCCCGAC GCCCGGGCTT TGgtCGccCG GCCTCAGTGA GCGAGCGAGC | 200 | | | |
| | 210 | 220 | 230 | 240 | 250 |
| P81 | 201 GCGCAGAGAG GGAGTGGCCA ACTCCATCAC TAGGGTTCC TTGTAGTTAA | 250 | | | |
| p79 | 201 GCGCAGAGAG GGAGTGGCCA ACTCCATCAC TAGGGTTCC TTGTAGTTAA | 250 | | | |
| p1202 | 201 GCGCAGAGAG GGAGTGGCCA ACTCCATCAC TAGGGTTCC TTGTAGTTAA | 250 | | | |
| | 260 | 270 | 280 | 290 | 300 |
| P81 | 251 TGATTAACCC GCCATGCTAC TTATCTACCG ATGAATTGGA GCTTGATGC | 300 | | | |
| p79 | 251 TGATTAACCC GCCATGCTAC TTATCTACCG ATGAATTGGA GCTTGATGC | 300 | | | |
| p1202 | 251 TGATTAACCC GCCATGCTAC TTATCTACCG ATGAATTGGA GCTTGATGC | 300 | | | |

FIG. 11



TITLE: APOLO-ASSOCIATED VIRUS VECTORS AND USE THEREOF
INVENTORS NAME: John F. Engelhardt et al.
SERIAL NO.: 09/684,554

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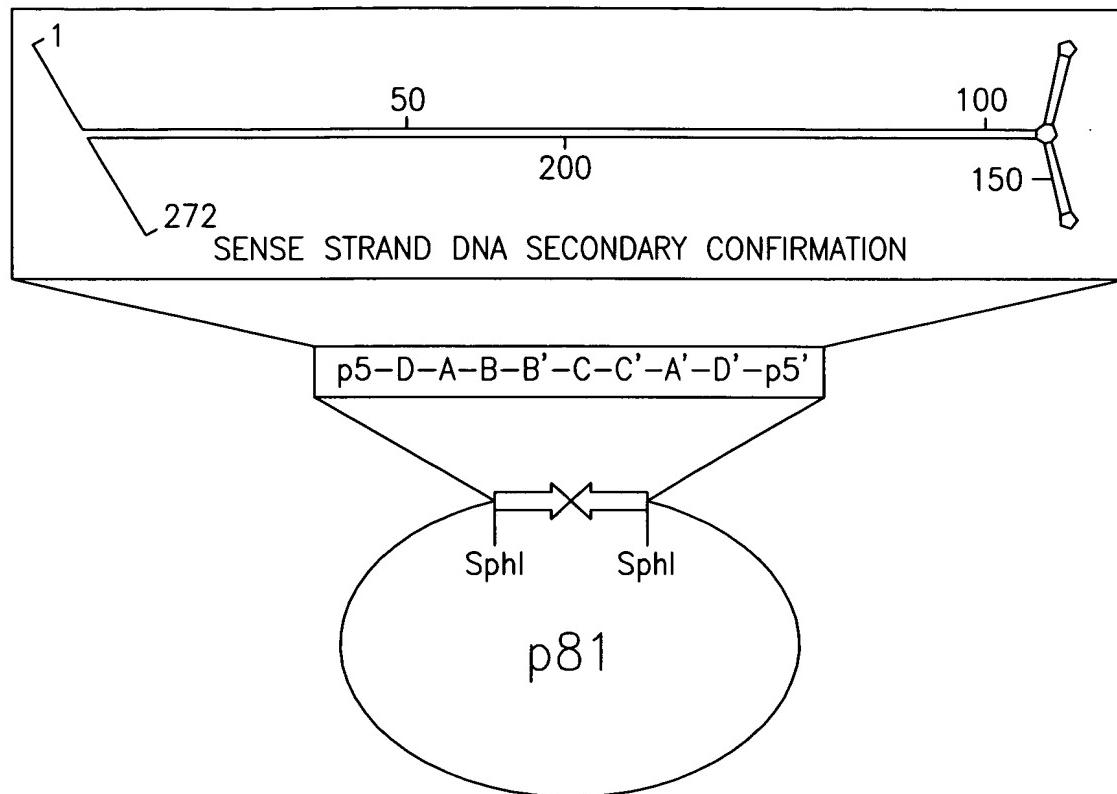


FIG. 12A



TITLE: A NO-ASSOCIATED VIRUS VECTORS AND USE THEREOF
INVENTORS NAME: John F. Engelhardt et al.
SERIAL NO.: 09/684,554

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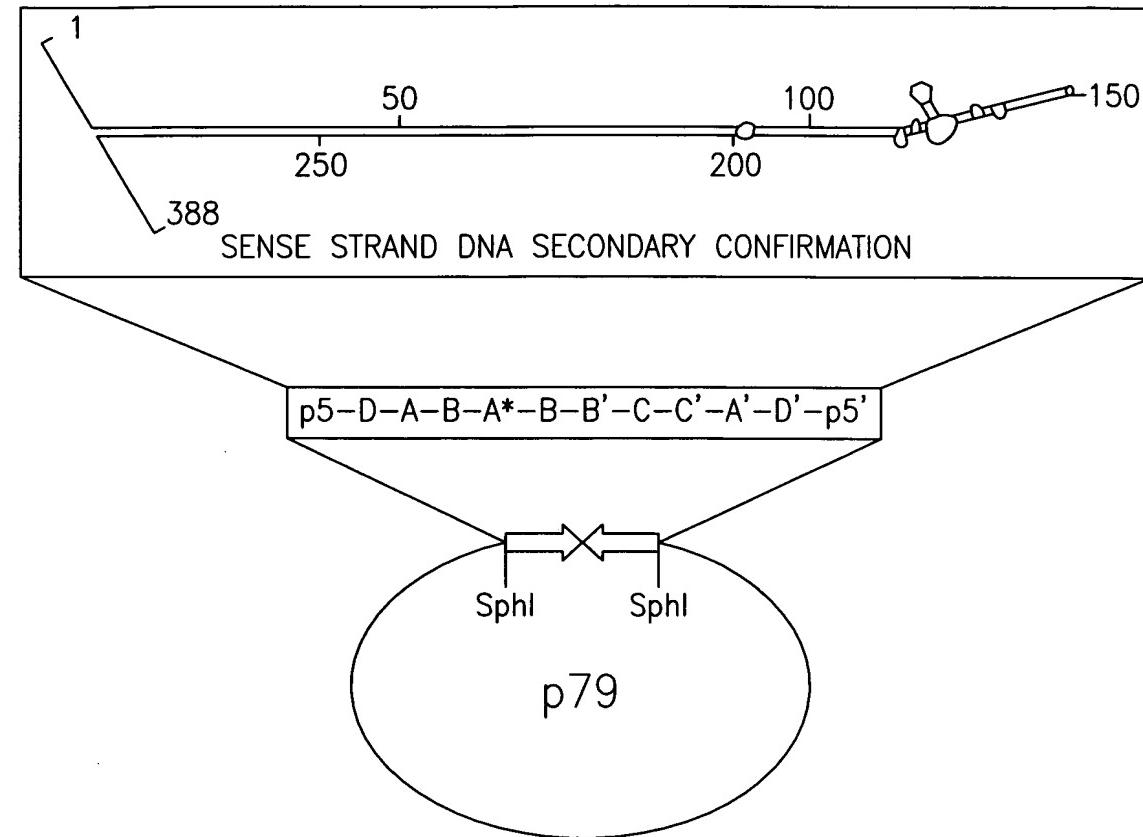


FIG. 12B



TITLE: [REDACTED] NO-ASSOCIATED VIRUS VECTORS AND USE THEREOF
INVENTORS NAME: John F. Engelhardt et al.
SERIAL NO.: 09/684,554

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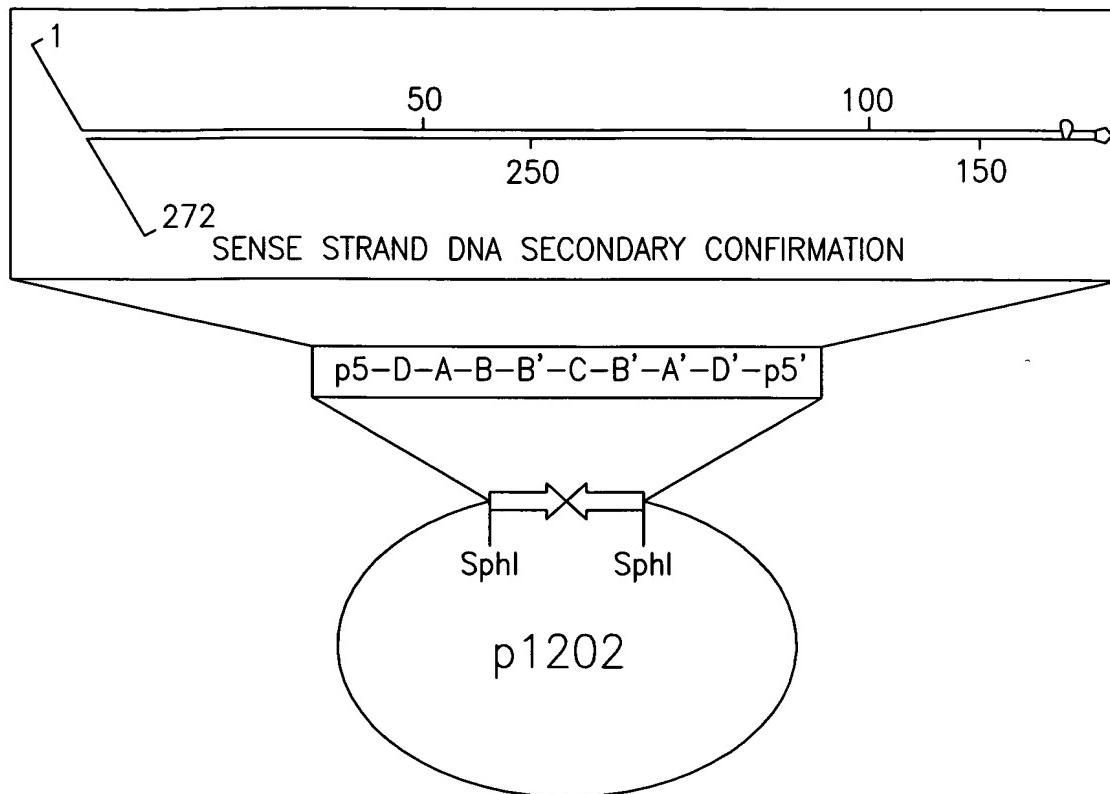


FIG. 12C



TITLE: NO-ASSOCIATED VIRUS VECTORS AND USE THEREOF
INVENTORS NAME: John F. Engelhardt et al.
SERIAL NO.: 09/684,554

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Bright Field

p81

pCisAV.GFPori

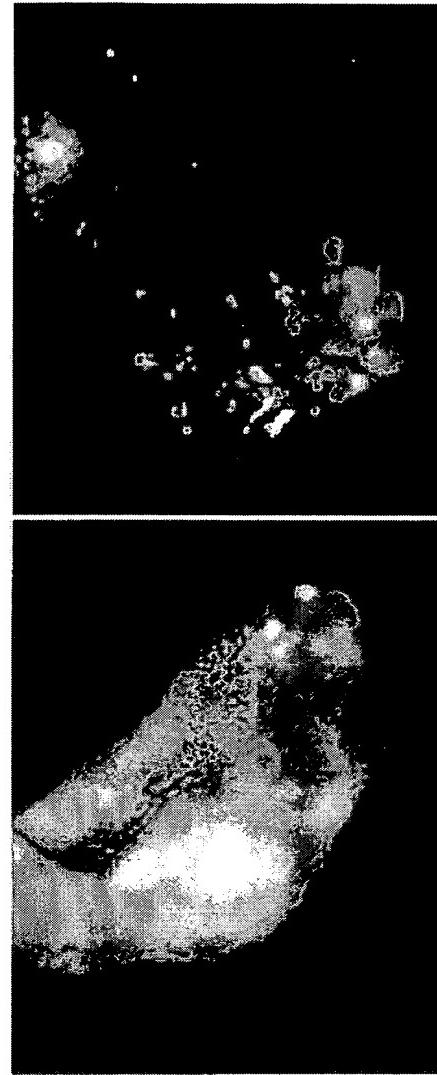


FIG. 13



TITLE: APO-ASSOCIATED VIRUS VECTORS AND USE THEREOF
 INVENTORS NAME: John F. Engelhardt et al.
 SERIAL NO.: 09/684,554

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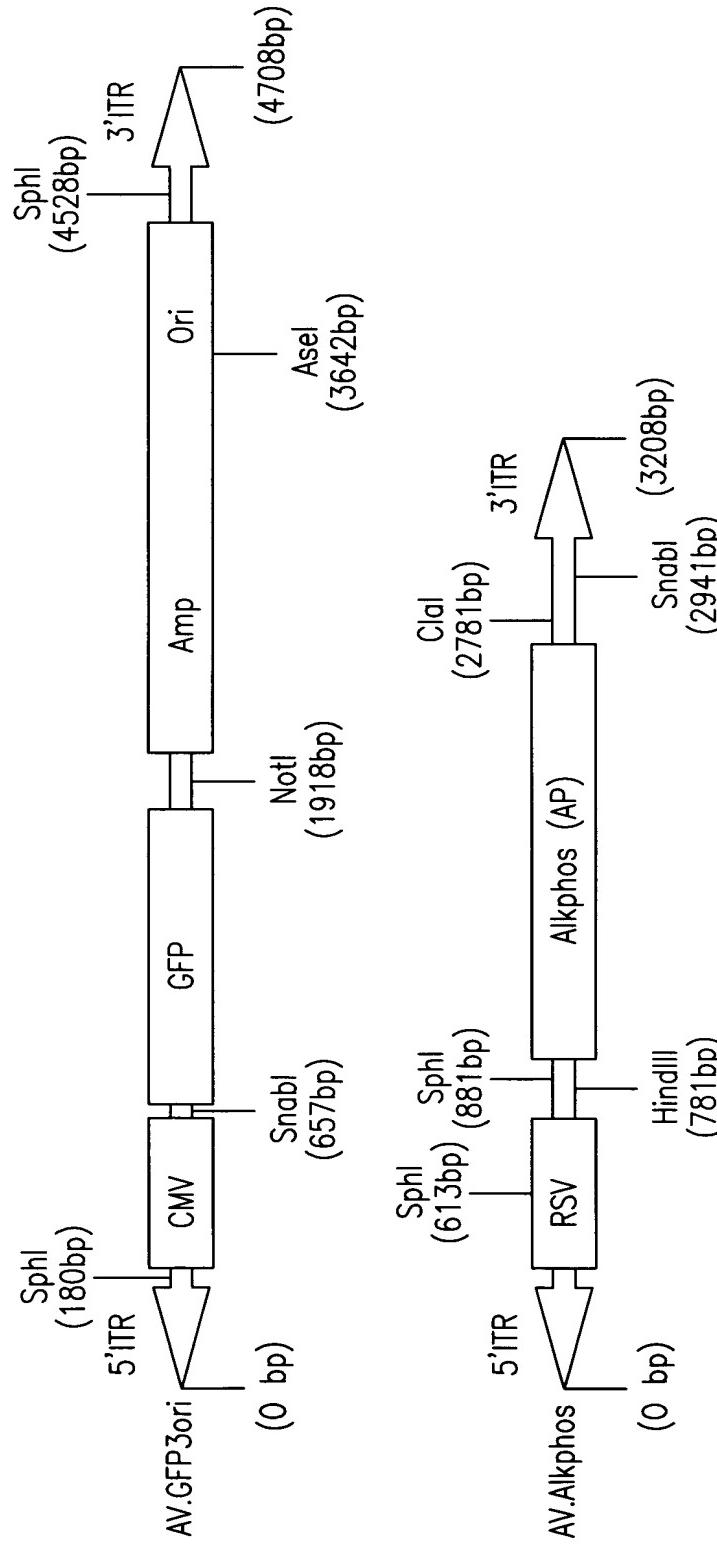


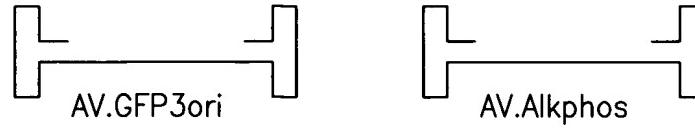
FIG. 14A



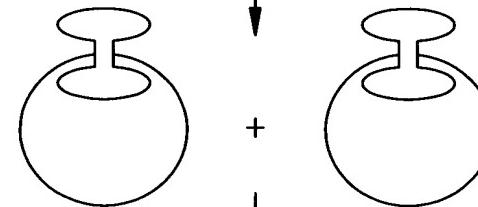
TITLE: A NO-ASSOCIATED VIRUS VECTORS AND USE THEREOF
INVENTORS NAME: John F. Engelhardt et al.
SERIAL NO.: 09/684,554

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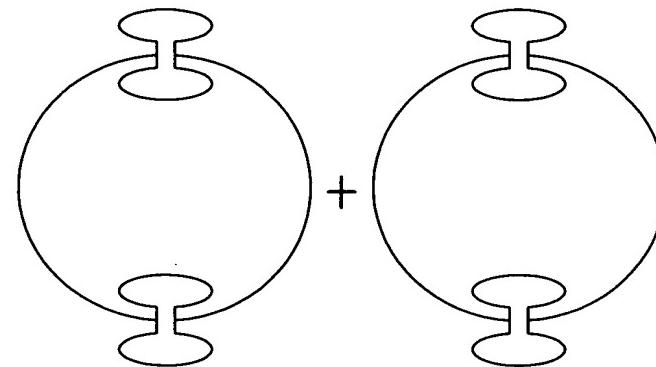
MODEL 1
ROLLING CIRCULAR REPLICATION



CO-INFECTION
CIRCULARIZATION



CONCATAMERIZATION



DIMERS AND
MULTIMERS

RESCUE

PLASMIDS EXPRESS
GFP ONLY

FIG. 14B



TITLE: AAV-ASSOCIATED VIRUS VECTORS AND USE THEREOF
INVENTORS NAME: John F. Engelhardt et al.
SERIAL NO.: 09/684,554

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MODEL 2
INTERMOLECULAR RECOMBINATION

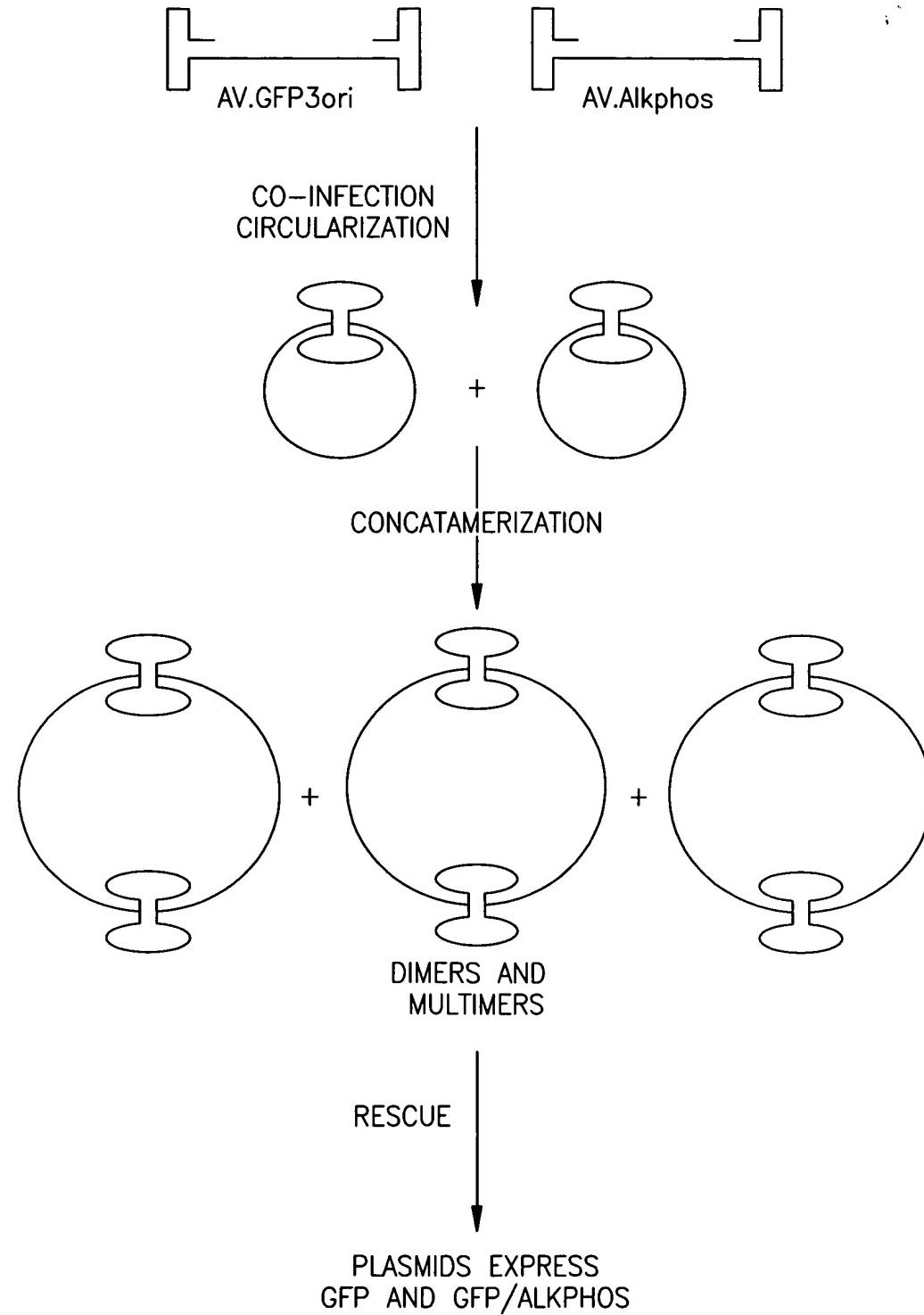


FIG. 14C

O I P E JC81
AUG 13 2003

TITLE: APOO-ASSOCIATED VIRUS VECTORS AND USE THEREOF
INVENTORS NAME: John F. Engelhardt et al.
SERIAL NO.: 09/684,554

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FIG. 15A



TITLE: A BLOO-ASSOCIATED VIRUS VECTORS AND USE THEREOF
INVENTORS NAME: John F. Engelhardt et al.
SERIAL NO.: 09/684,554

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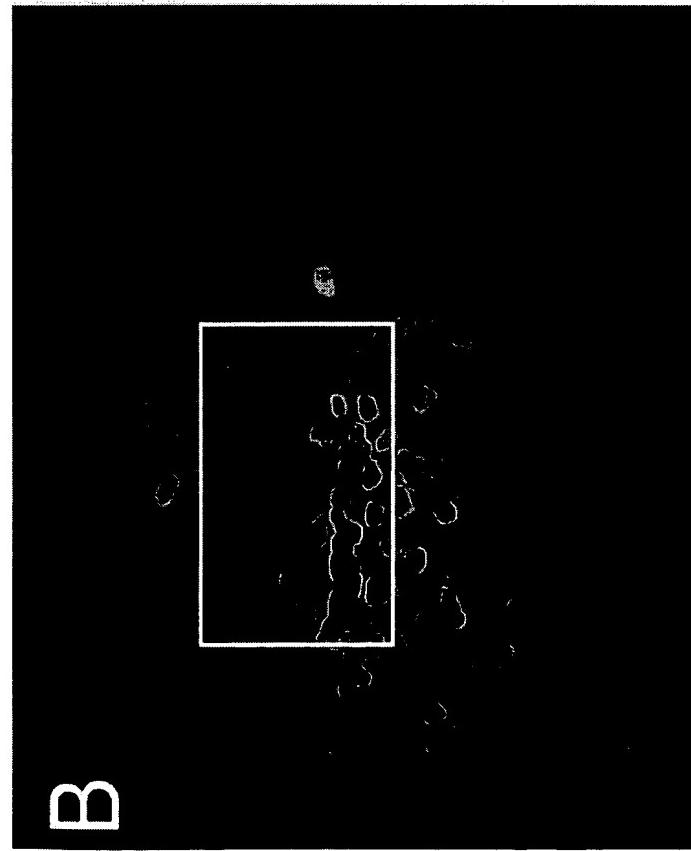


FIG. 15B



TITLE: A MUNO-ASSOCIATED VIRUS VECTORS AND USE THEREOF
INVENTORS NAME: John F. Engelhardt et al.
SERIAL NO.: 09/684,554

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FIG. 15C



TITLE: APO-ASSOCIATED VIRUS VECTORS AND USE THEREOF
INVENTORS NAME: John F. Engelhardt et al.
SERIAL NO.: 09/684,554

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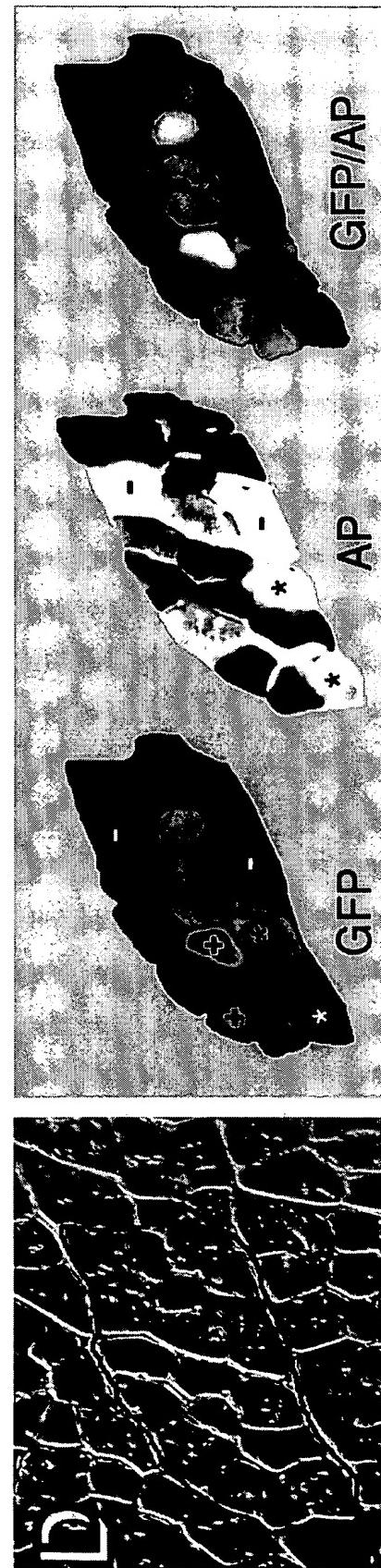


FIG. 15D



TITLE: A BENO-ASSOCIATED VIRUS VECTORS AND USE THEREOF
 INVENTORS NAME: John F. Engelhardt et al.
 SERIAL NO.: 09/684,554

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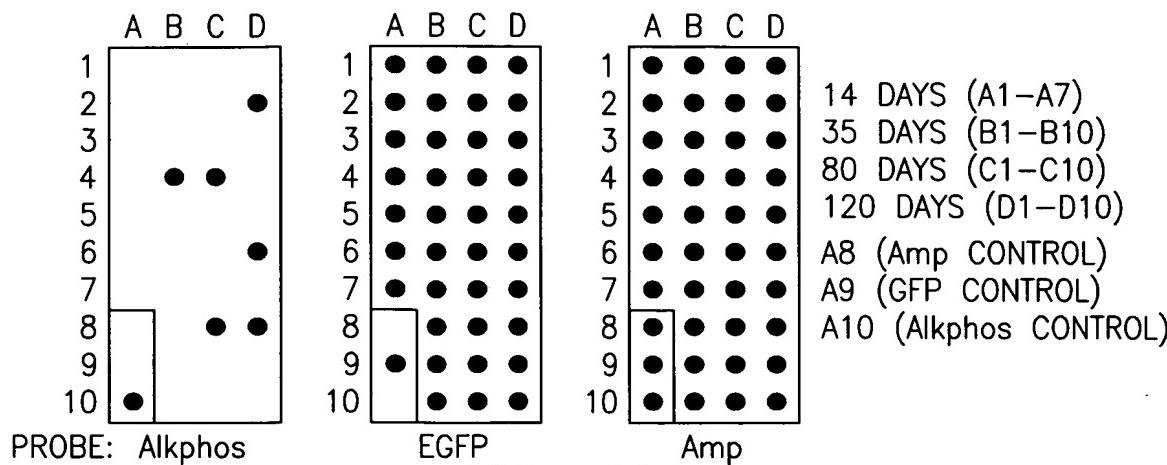


FIG. 16A

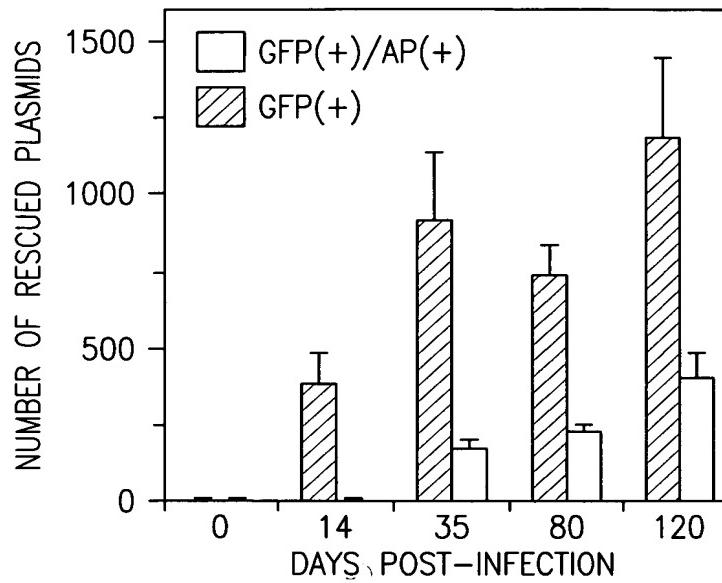


FIG. 16B

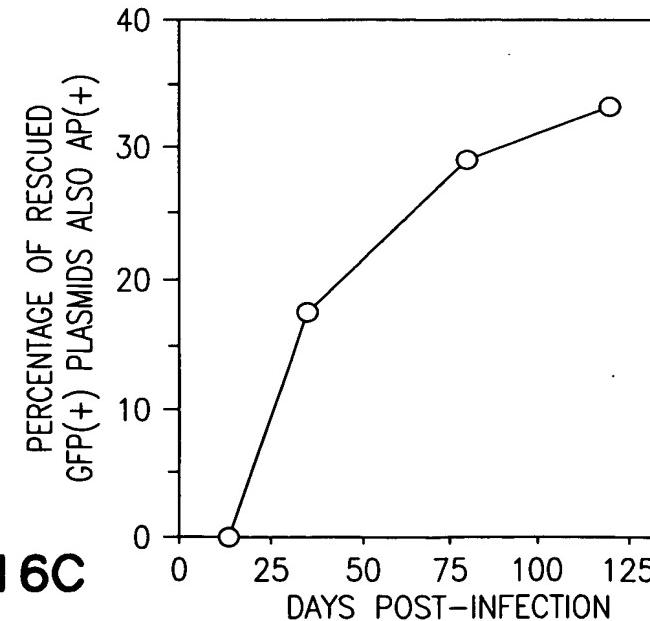
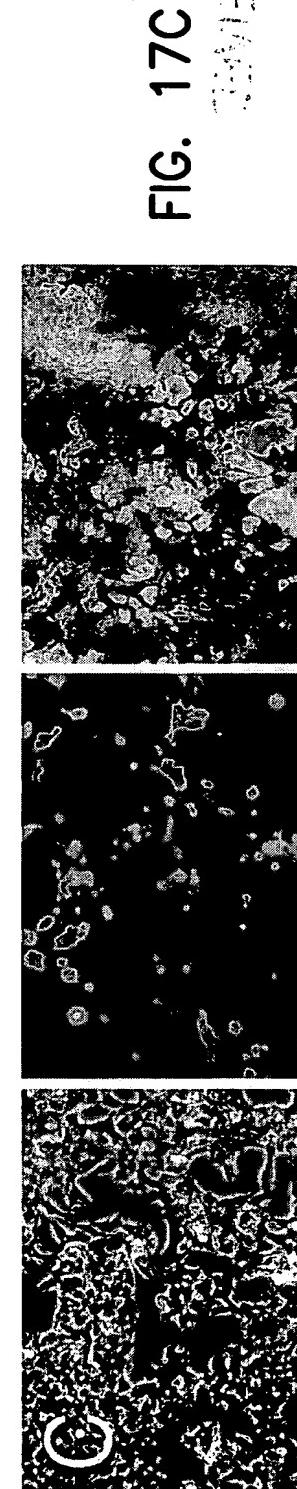
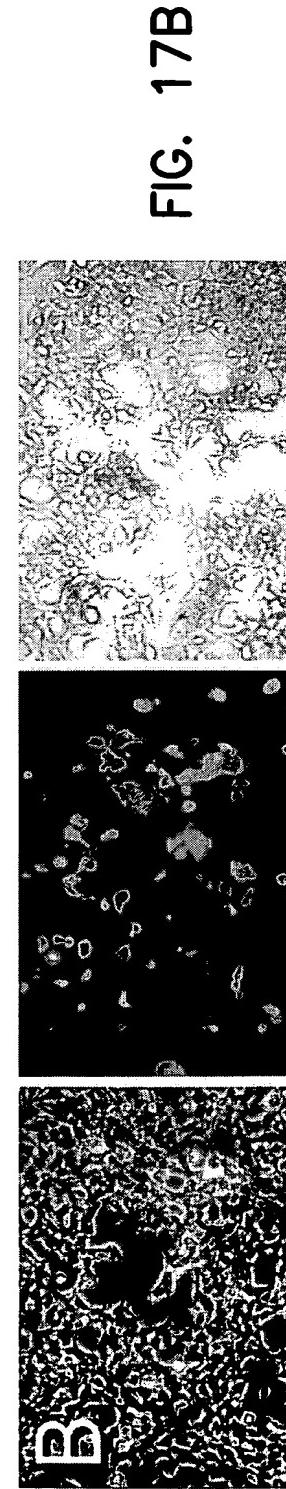
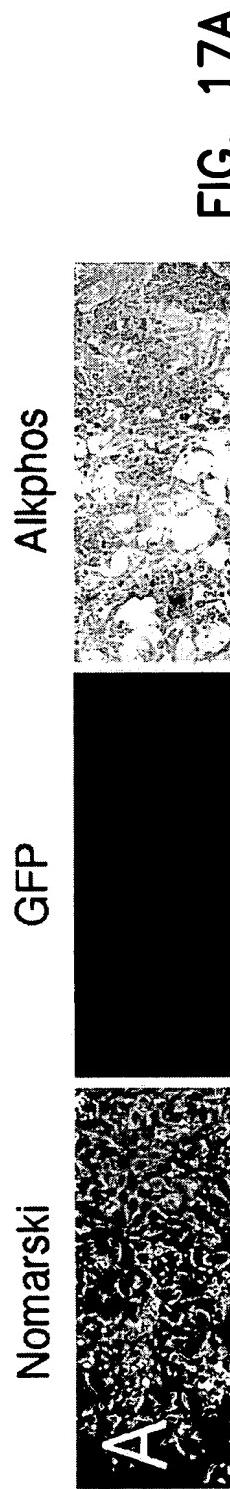


FIG. 16C



TITLE: A B10-ASSOCIATED VIRUS VECTORS AND USE THEREOF
INVENTORS NAME: John F. Engelhardt et al.
SERIAL NO.: 09/684,554

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TITLE: APOO-ASSOCIATED VIRUS VECTORS AND USE THEREOF
INVENTORS NAME: John F. Engelhardt et al.
SERIAL NO.: 09/684,554

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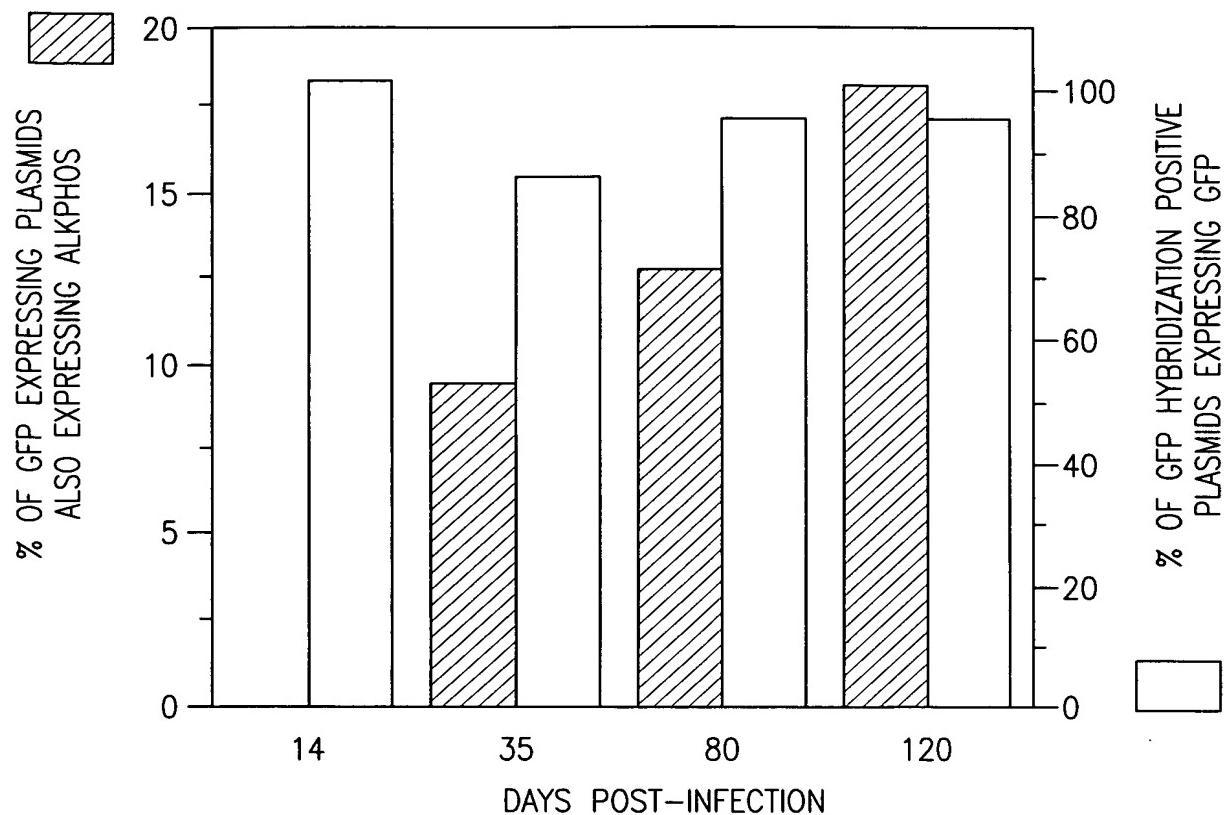


FIG. 17D



TITLE: APO-ASSOCIATED VIRUS VECTORS AND USE THEREOF
INVENTORS NAME: John F. Engelhardt et al.
SERIAL NO.: 09/684,554

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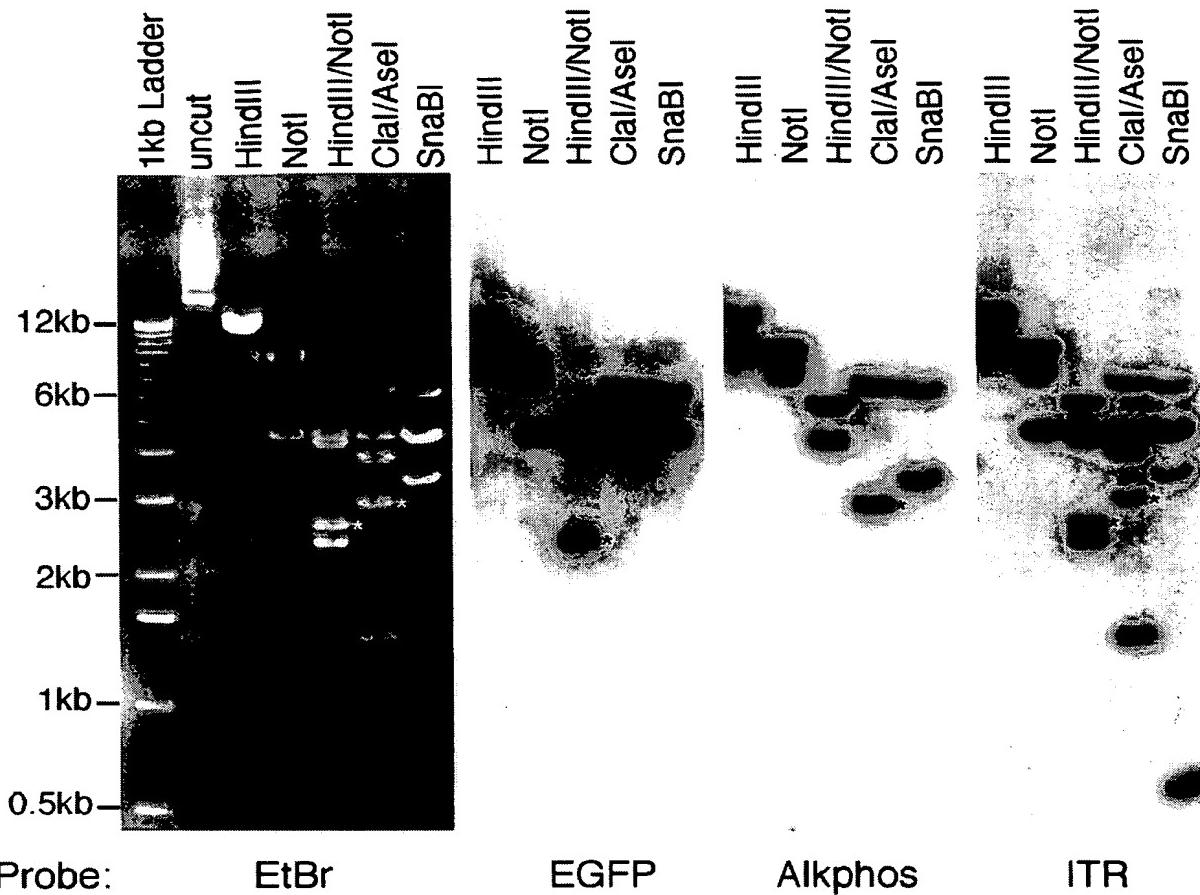


FIG. 18A

O1PE JCBT
AUG 13 2003
INVENT & TRAD MARK OFFICE

TITLE: MONO-ASSOCIATED VIRUS VECTORS AND USE THEREOF
INVENTORS NAME: John F. Engelhardt et al.
SERIAL NO.: 09/684,554

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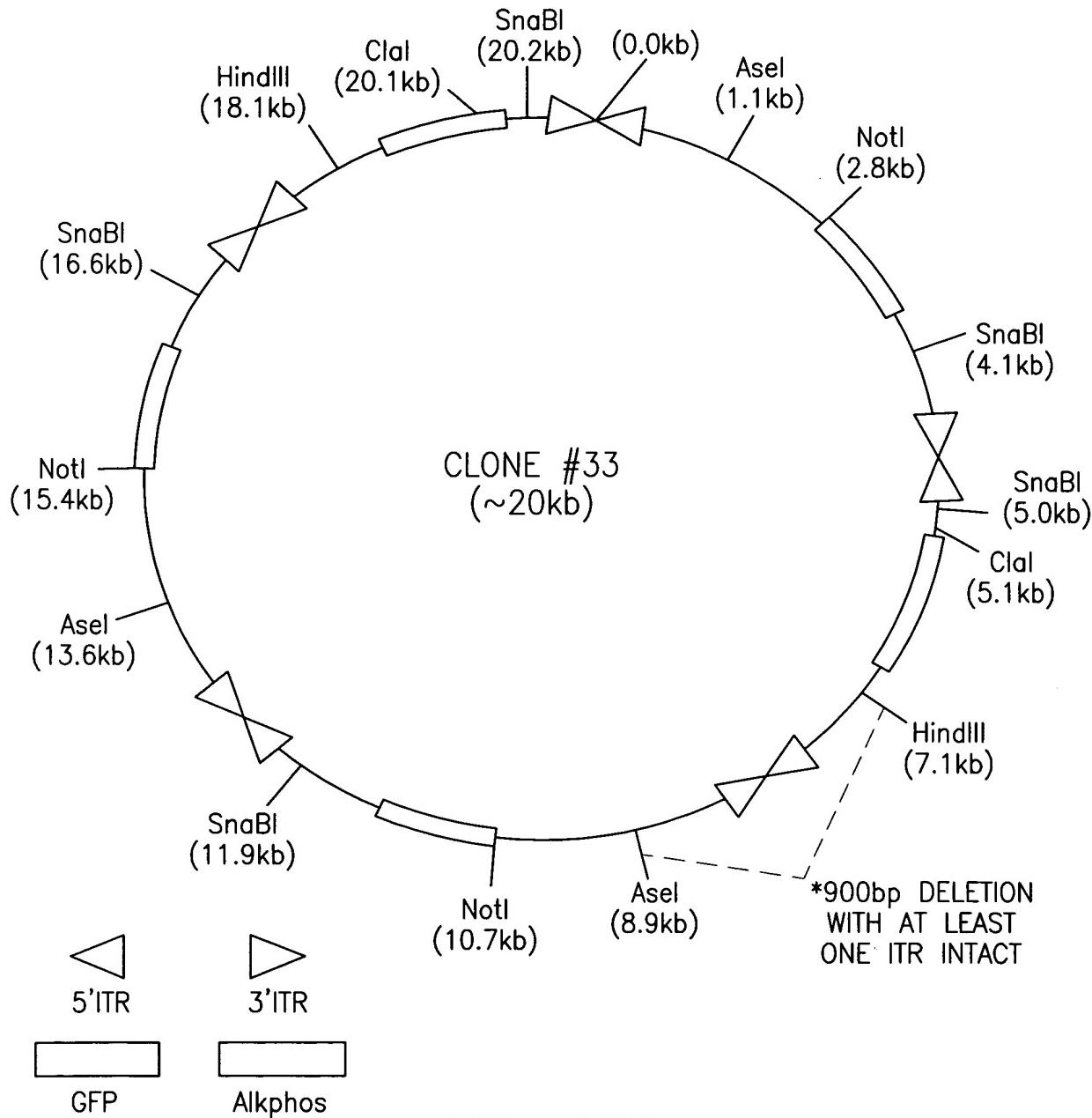


FIG. 18B



TITLE: ENO-ASSOCIATED VIRUS VECTORS AND USE THEREOF
INVENTORS NAME: John F. Engelhardt et al.
SERIAL NO.: 09/684,554

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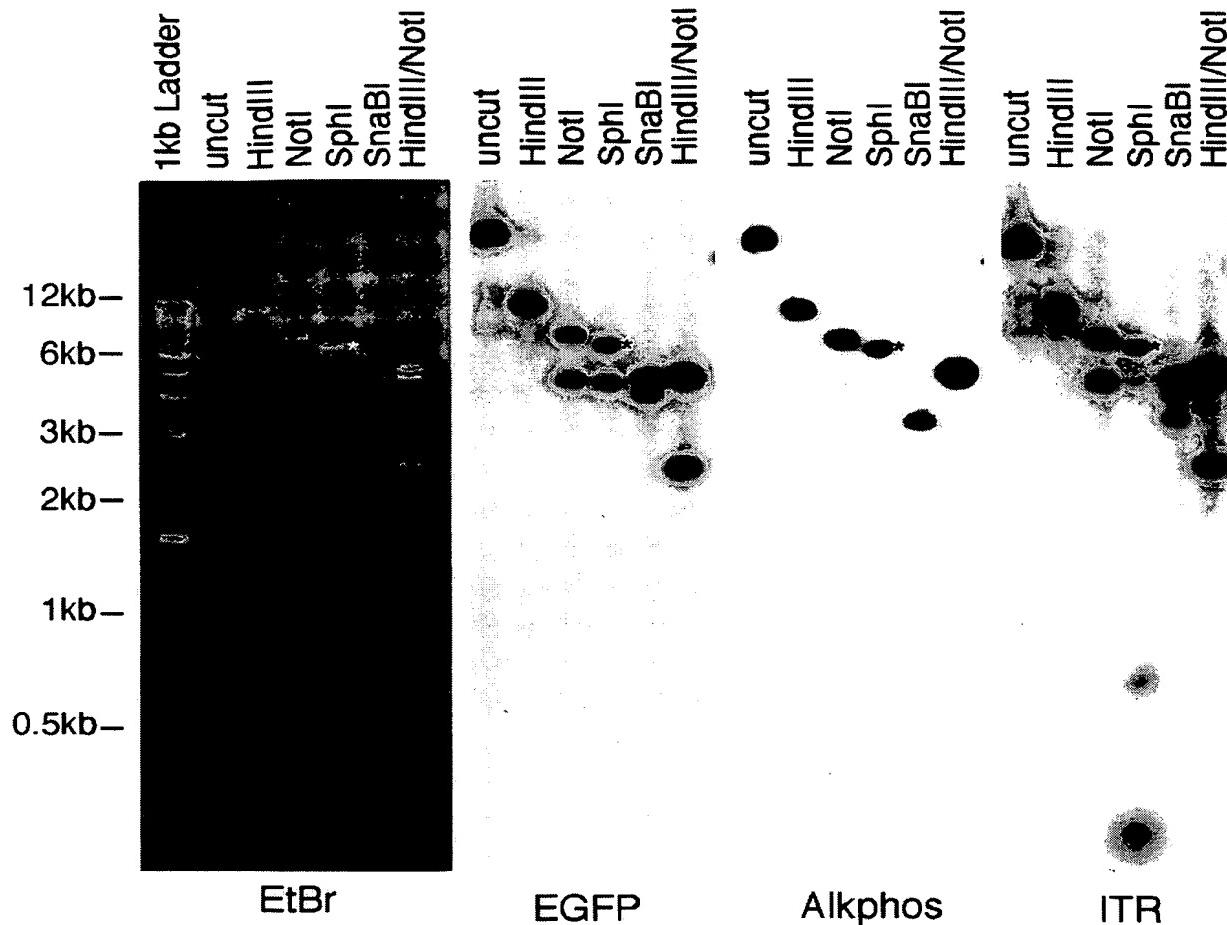


FIG. 18C

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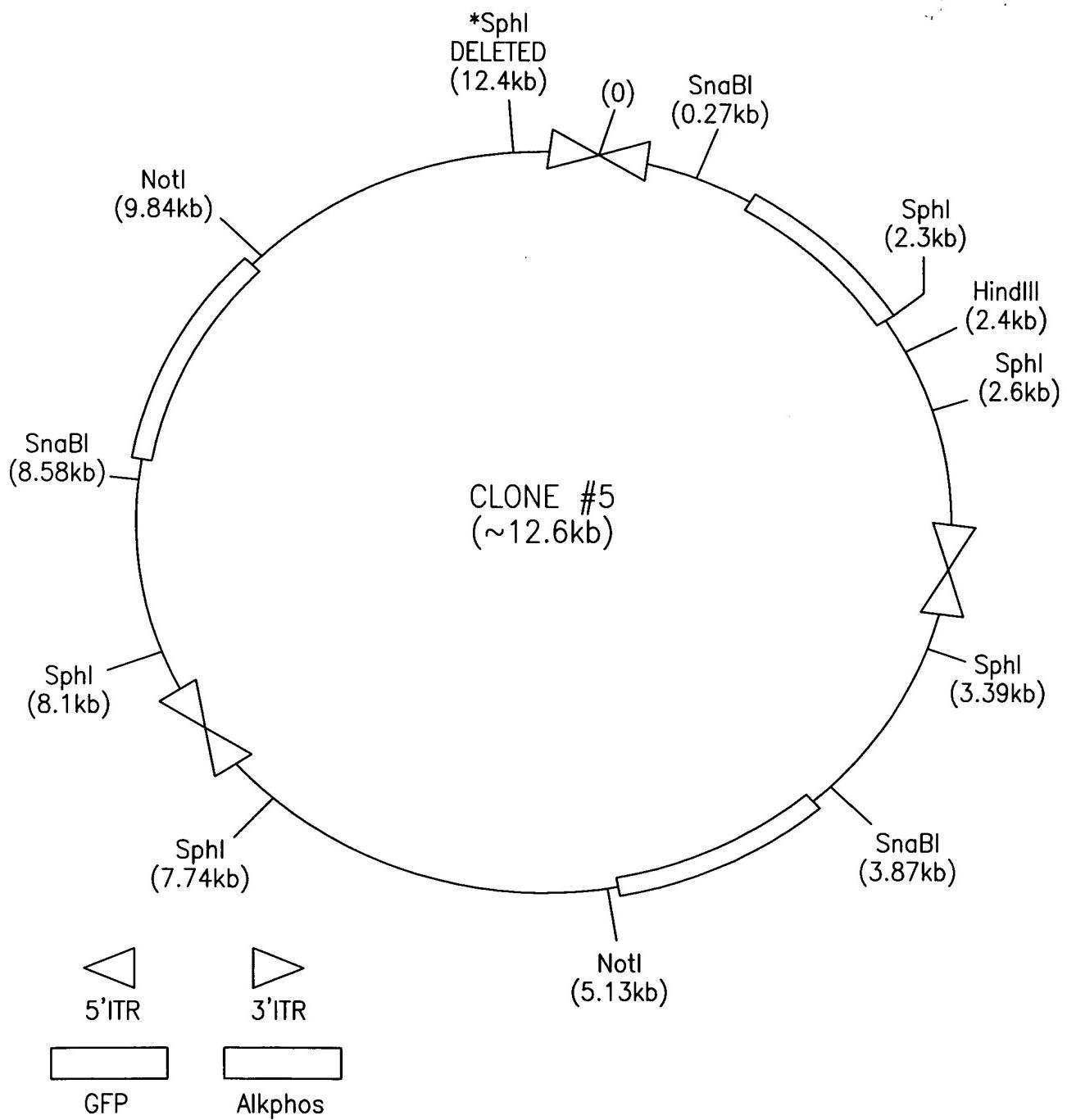


FIG. 18D



TITLE: [REDACTED] ENO-ASSOCIATED VIRUS VECTORS AND USE THEREOF
INVENTORS NAME: John F. Engelhardt et al.
SERIAL NO.: 09/684,554

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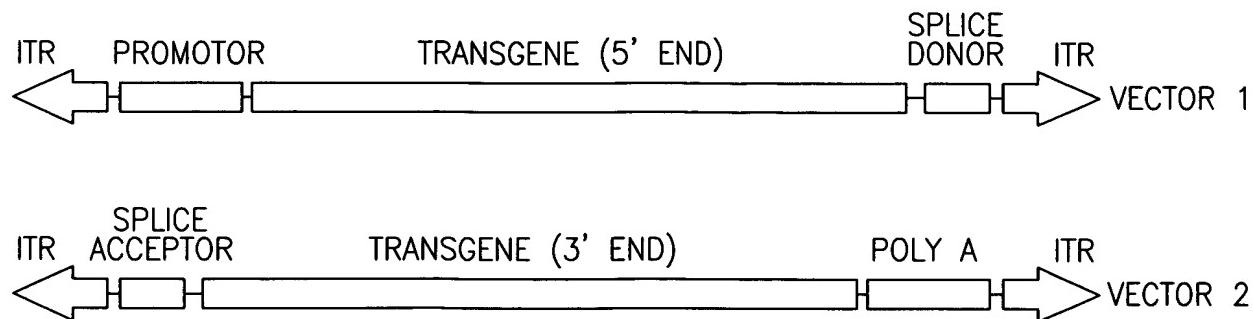


FIG. 19A

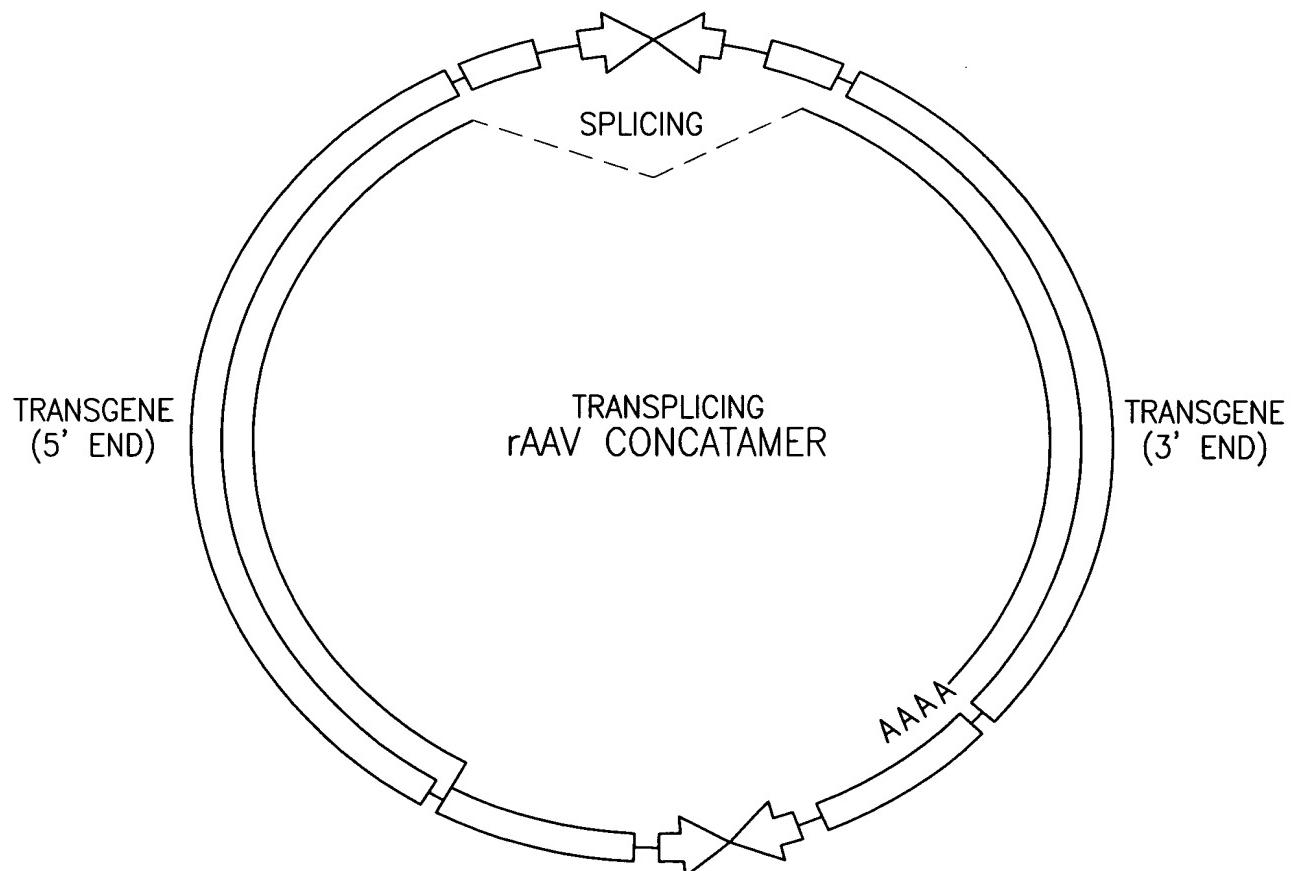


FIG. 19B

U.S. PATENT & TRADEMARK OFFICE
AUG 13 2003

TITLE: [REDACTED] DENO-ASSOCIATED VIRUS VECTORS AND USE THEREOF
INVENTORS NAME: John F. Engelhardt et al.
SERIAL NO.: 09/684,554

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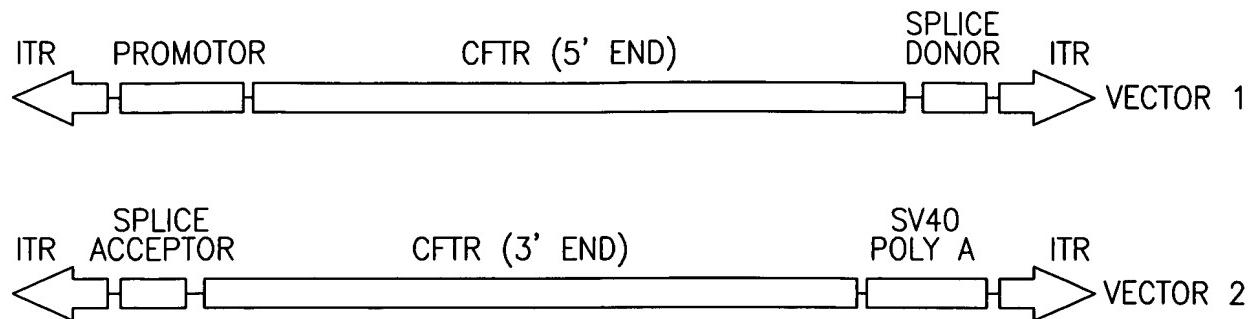


FIG. 19C

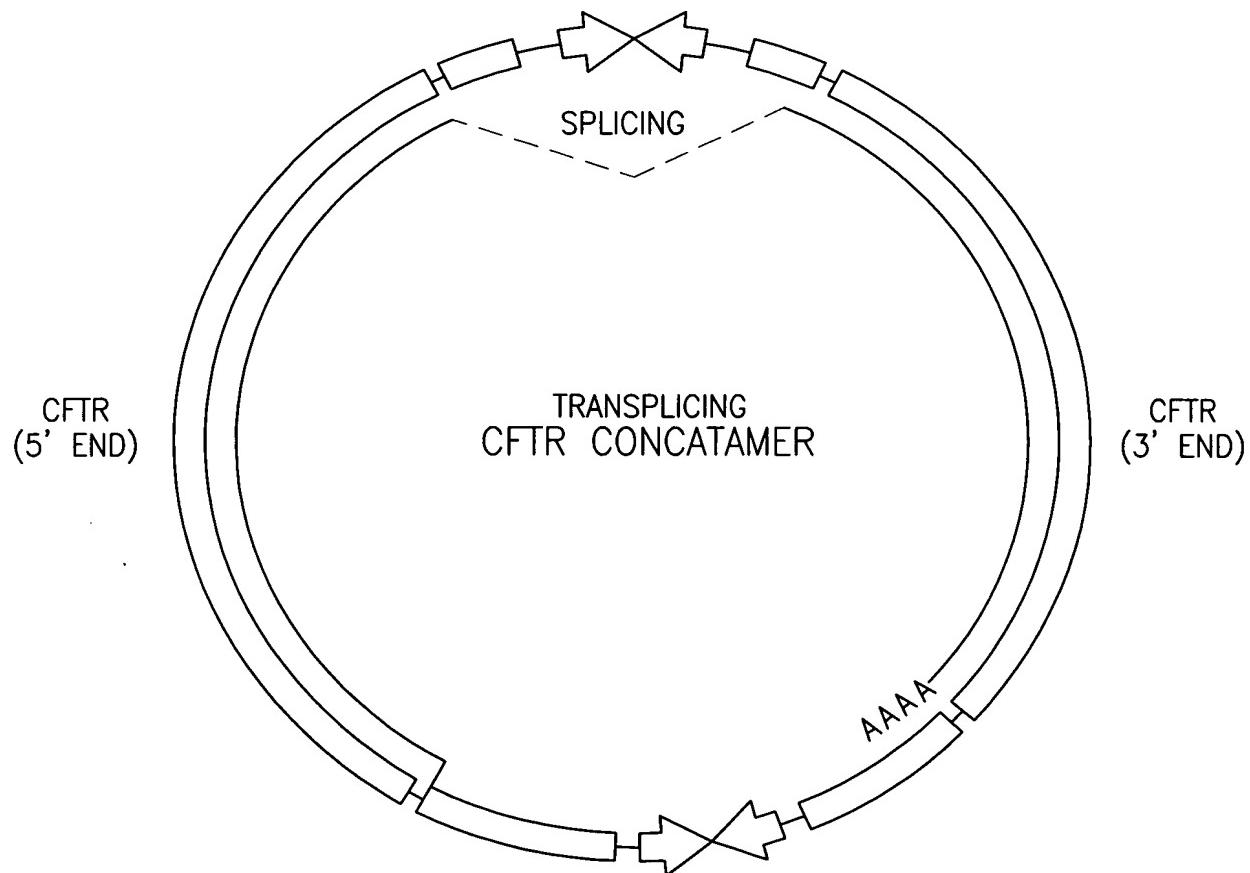


FIG. 19D



TITLE: [REDACTED] ENO-ASSOCIATED VIRUS VECTORS AND USE THEREOF
INVENTORS NAME: John F. Engelhardt et al.
SERIAL NO.: 09/684,554

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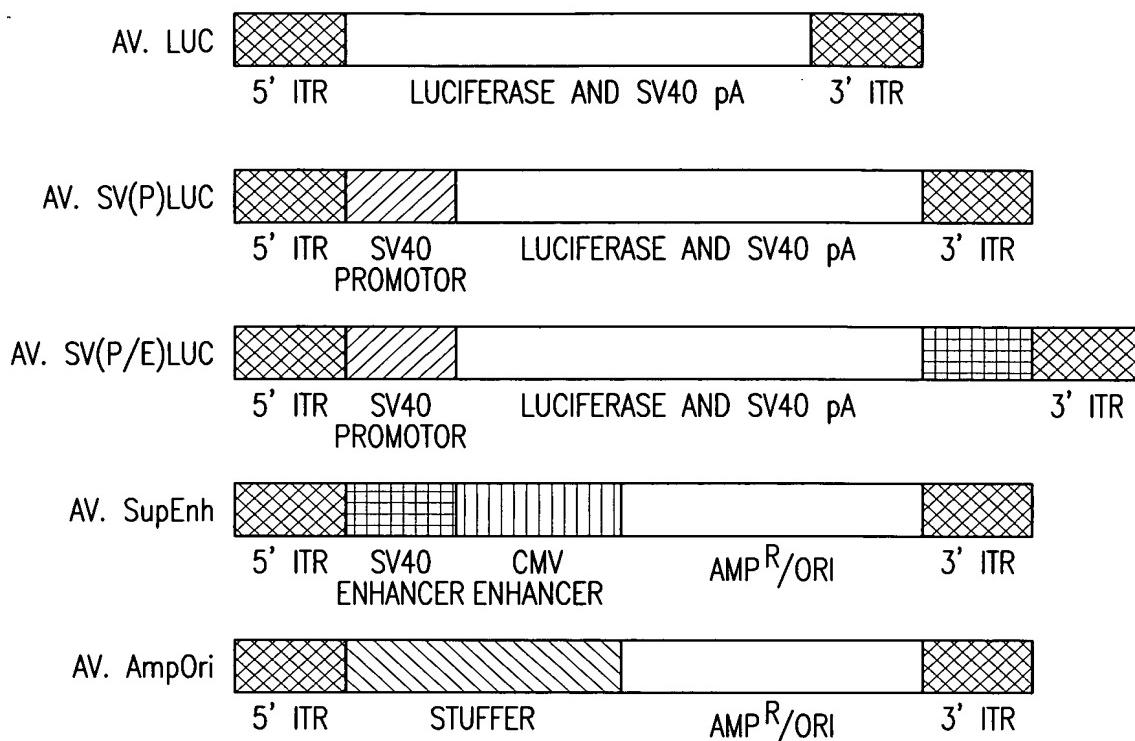


FIG. 20

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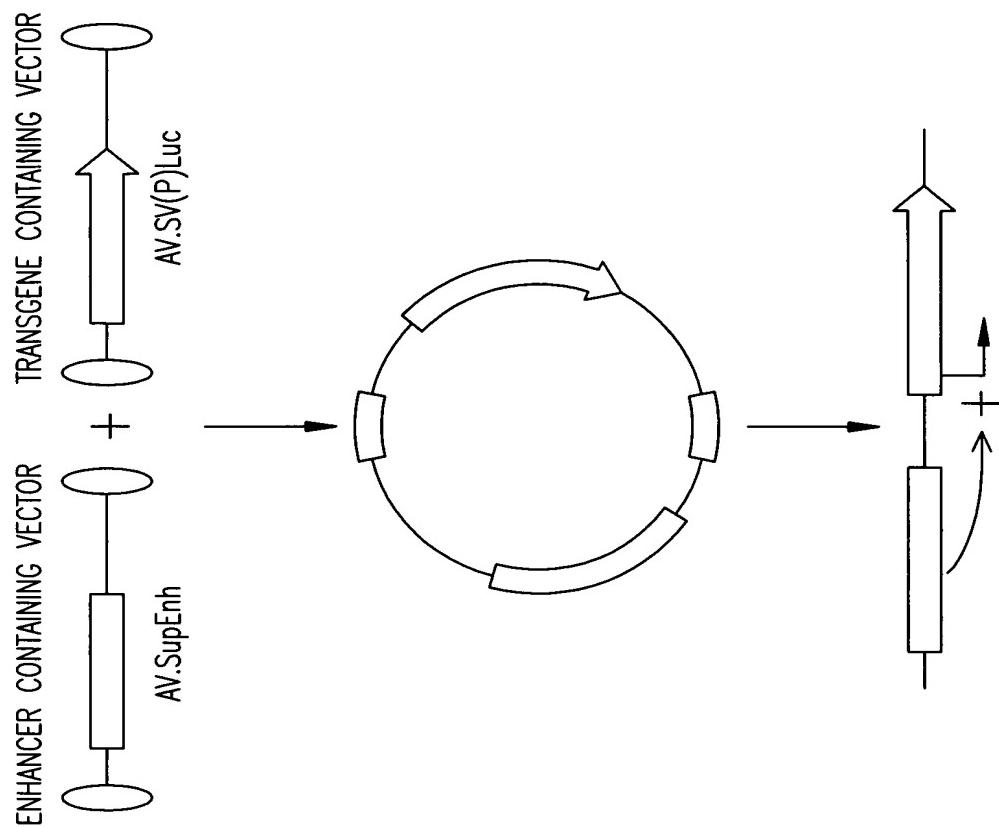


FIG. 21B

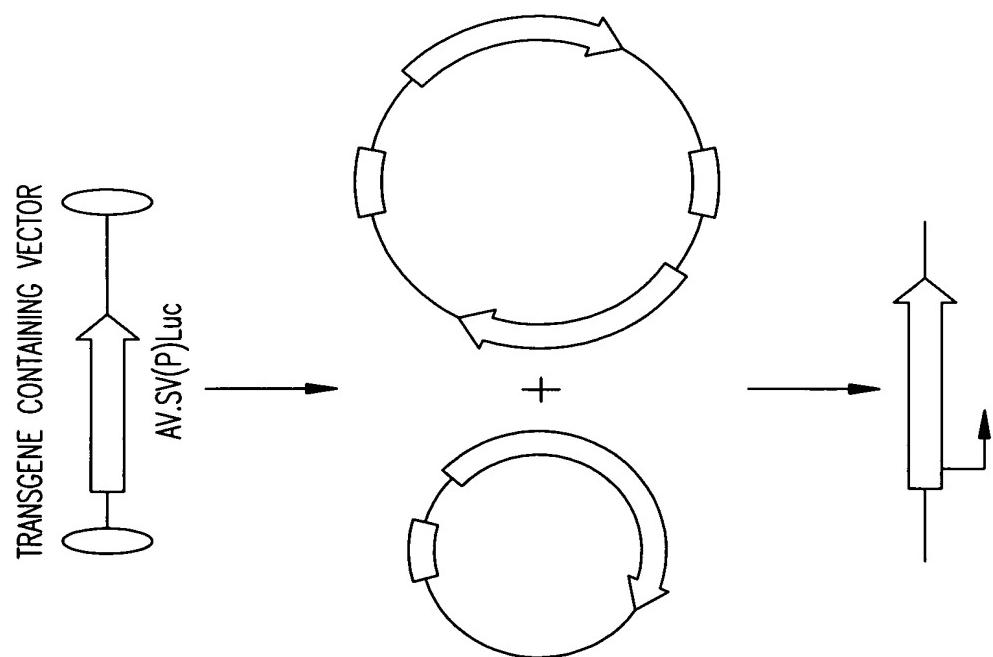


FIG. 21A



TITLE: HENO-ASSOCIATED VIRUS VECTORS AND USES THEREOF
INVENTORS NAME: John F. Engelhardt et al.
SERIAL NO.: 09/684,554

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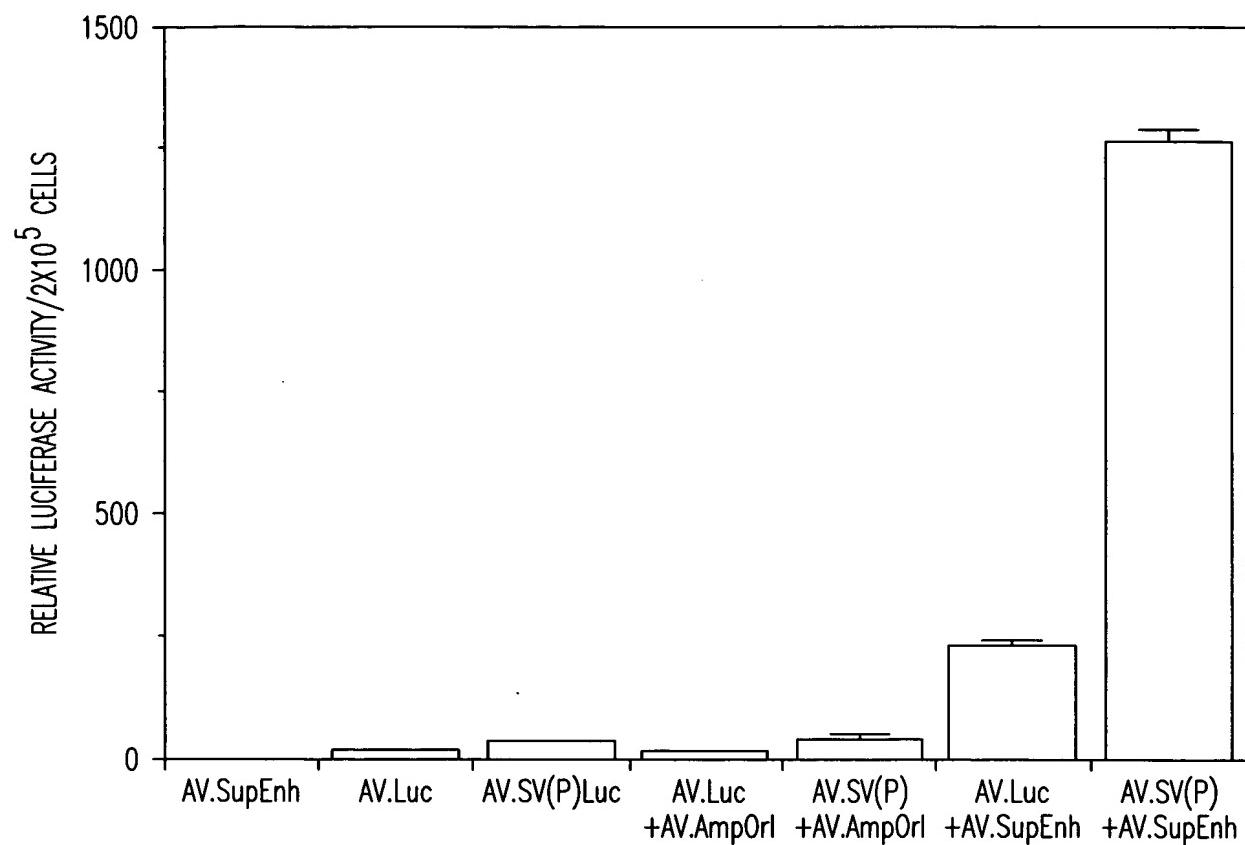


FIG. 22



TITLE: ADENO-ASSOCIATED VIRUS VECTORS AND USES THEREOF
INVENTORS NAME: John F. Engelhardt et al.
SERIAL NO.: 09/684,554

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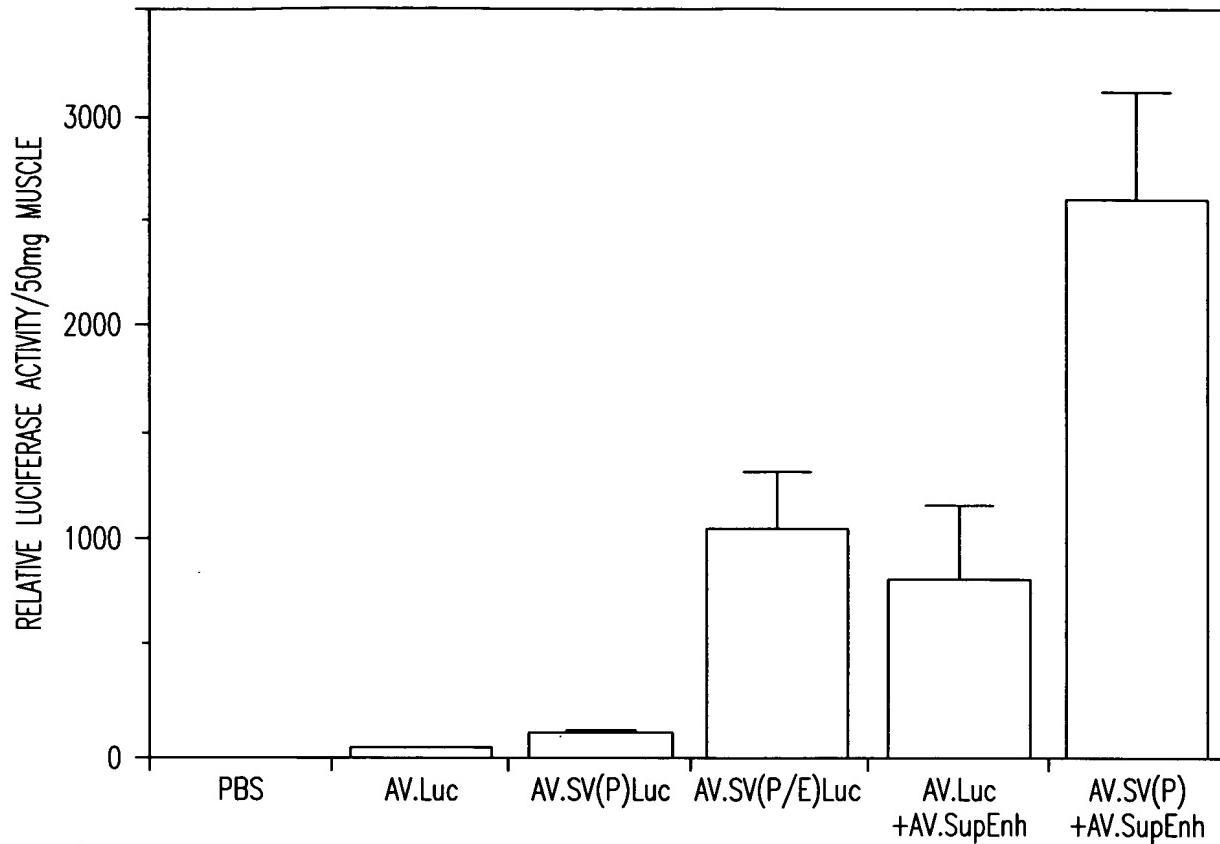


FIG. 23A



TITLE: DENO-ASSOCIATED VIRUS VECTORS AND USES THEREOF
INVENTORS NAME: John F. Engelhardt et al.
SERIAL NO.: 09/684,554

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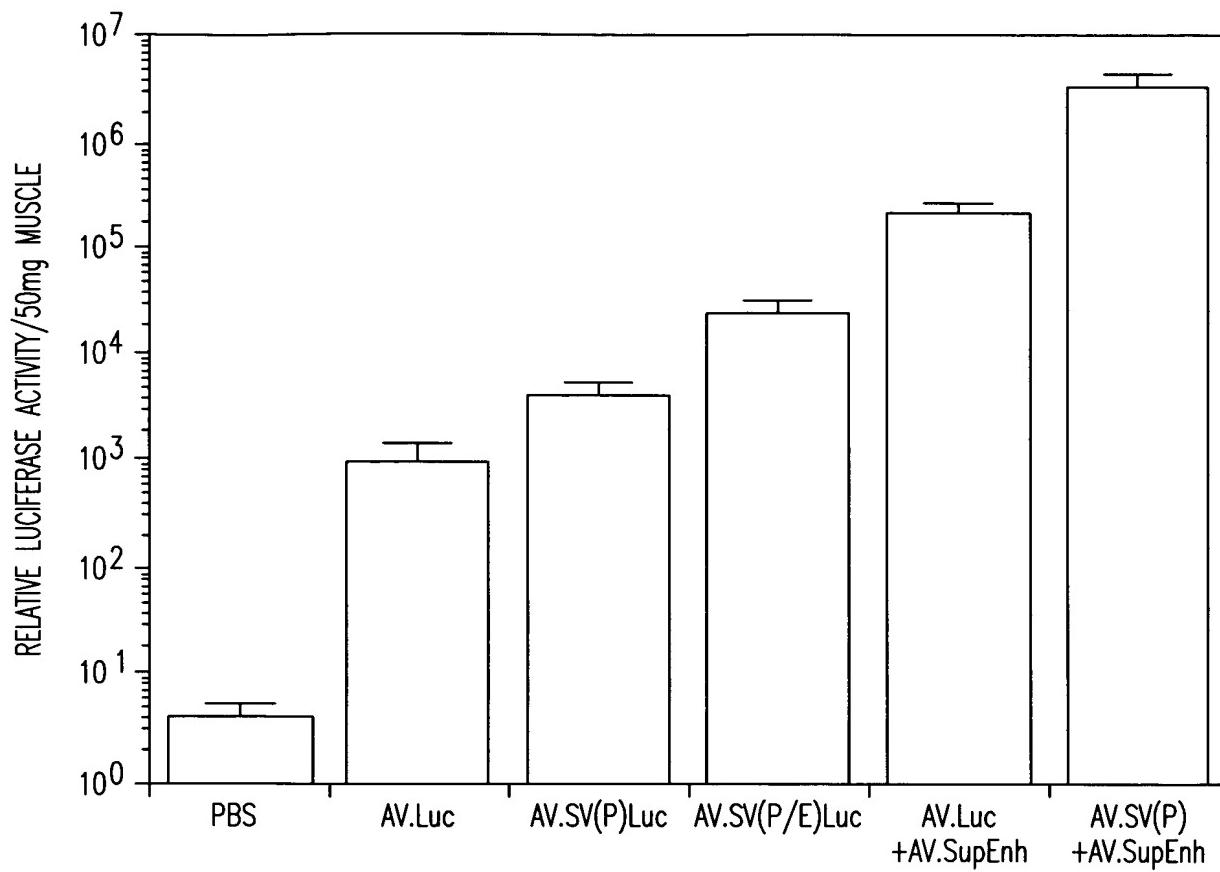


FIG. 23B



TITLE: MONO-ASSOCIATED VIRUS VECTORS AND USE THEREOF
INVENTORS NAME: John F. Engelhardt et al.
SERIAL NO.: 09/684,554

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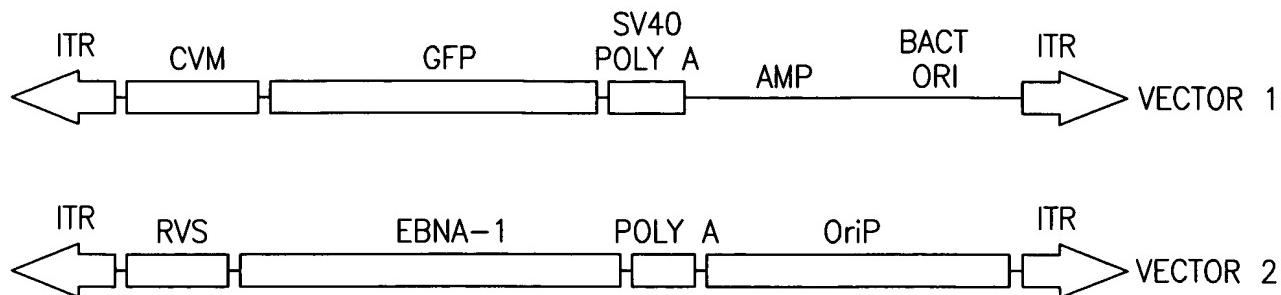


FIG. 24A

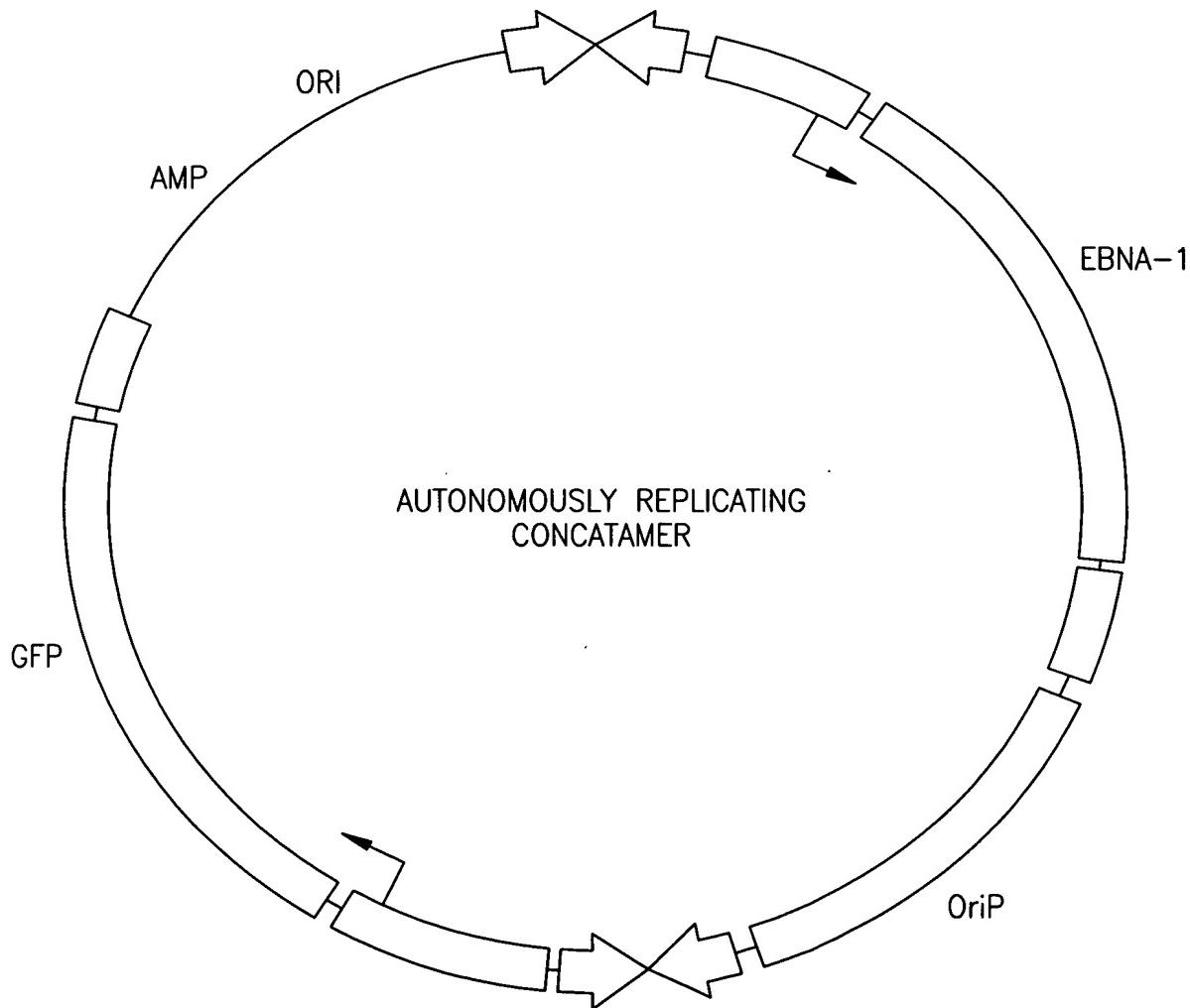


FIG. 24B



TITLE: ENO-ASSOCIATED VIRUS VECTORS AND USE THEREOF
 INVENTORS NAME: John F. Engelhardt et al.
 SERIAL NO.: 09/684,554

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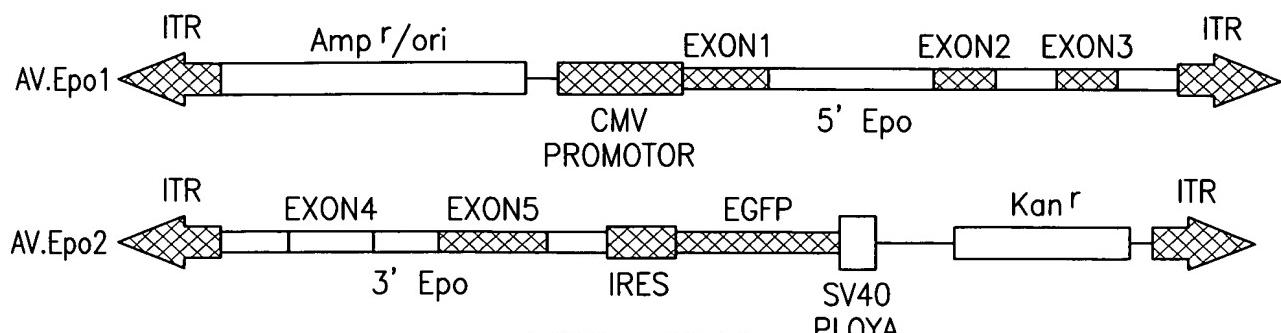


FIG. 25A

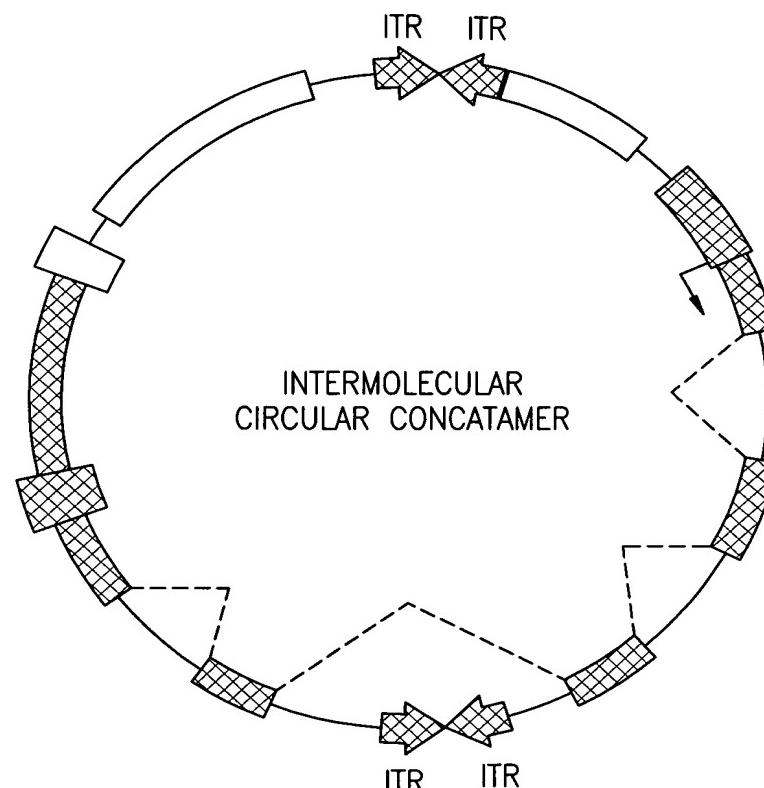


FIG. 25B

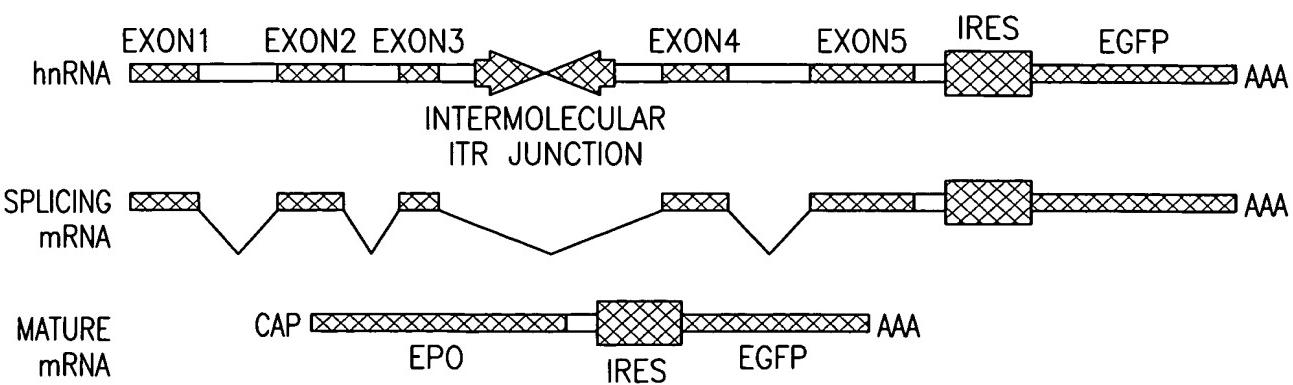


FIG. 25C



TITLE: ENO-ASSOCIATED VIRUS VECTORS AND USE THEREOF
INVENTORS NAME: John F. Engelhardt et al.
SERIAL NO.: 09/684,554

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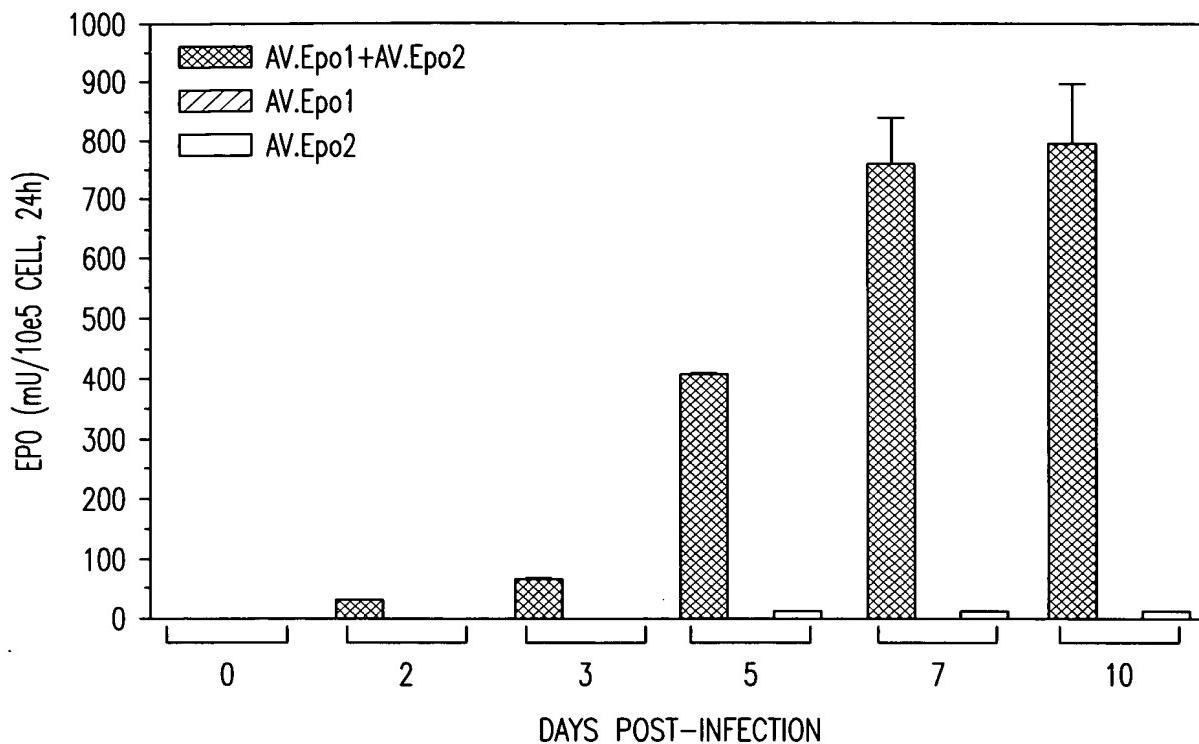


FIG. 26

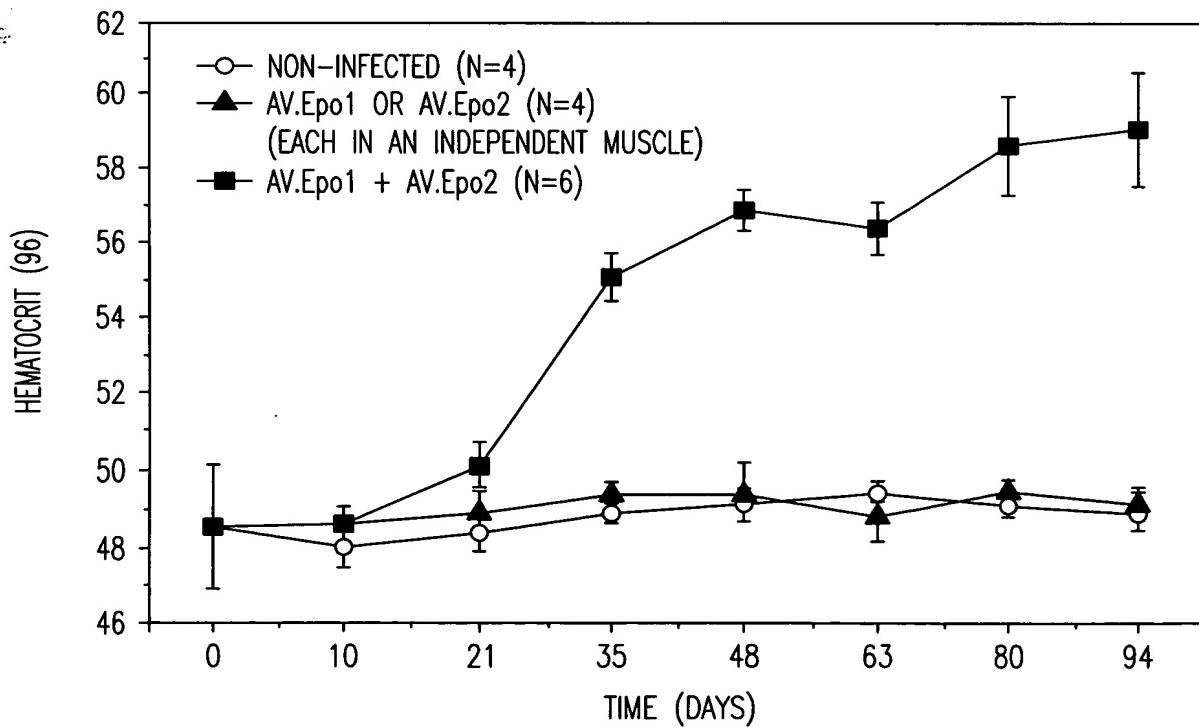


FIG. 27